# THE MARYLAND ENTOMOLOGIST

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## MARYLAND ENTOMOLOGICAL SOCIETY


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The Maryland Entomological Society (MES) was founded in November 1971, to promote the science of entomology in all its sub-disciplines; to provide a common meeting venue for professional and amateur entomologists residing in Maryland, the District of Columbia, and nearby areas; to issue a periodical and other publications dealing with entomology; and to facilitate the exchange of ideas and information through its meetings and publications.

The MES logo features a drawing of a specimen of ***Euphydryas phaëton*** (Drury), the Baltimore Checkerspot, with its generic name above and its specific epithet below (both in capital letters), all on a pale green field; all these are within a yellow ring double-bordered by red, bearing the message "* Maryland Entomological Society * 1971 *". All of this is positioned above the Shield of the State of Maryland. In 1973, the Baltimore Checkerspot was named the official insect of the State of Maryland through the efforts of many MES members.

Membership in the MES is open to all persons interested in the study of entomology. All members receive the journal, ***The Maryland Entomologist***, and the newsletter, ***Phaëton***. Institutions may subscribe to ***The Maryland Entomologist*** but may not become members. Prospective members should send to the Treasurer full dues for the current MES year, along with their full name, address, telephone number, entomological interests, and e-mail address.

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| Annual Dues: | Active Member | $10.00 |
| | Junior Member (18 and younger) | $5.00 |
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Back issues of ***The Maryland Entomologist*** and recent issues of the ***Phaëton*** are available to members, via the Secretary: Richard H. Smith, Jr., 5213 Eliot's Oak Road, Columbia, MD 21044, (410) 997-7439, richard.smith@jhuapl.edu . Please contact the Secretary for availability and cost.

The MES is a non-profit, scientific organization. Meetings are held on the third Friday of October, November, February, March, April and May, at 8:00 p.m., in Room 4, of the Biological Sciences Building, University of Maryland Baltimore County (UMBC), or another announced site.

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## Editor's Note

This issue of ***The Maryland Entomologist*** is devoted exclusively to the study of the insects of Hart-Miller Island, Baltimore County, Maryland. Hart-Miller Island is located in the northern Chesapeake Bay.

In the first article, **David C. Peters** describes the creation of Hart-Miller Island from the remnants of the original Hart Island and Miller Island. The map presented in this article should be used as a reference for locations cited in the seven articles in this issue.

**Eugene J. Scarpulla** presents a preliminary annotated checklist of the insects of Hart-Miller Island based on his fieldwork and that of members of the Maryland Entomological Society and the Maryland Ornithological Society. **Richard L. Orr** documents the first Baltimore County record (and only the third Maryland record since 1900) of *Enallagma doubledayi* (Selys) (Atlantic Bluet); **Eugene J. Scarpulla** provides a description of the first island sighting of *Erythrodiplax minuscula* (Rambur) (Little Blue Dragonlet); **William J. Hubick** documents the first island record of *Papilio cresphontes* Cramer (Giant Swallowtail); and **Marcia R. Watson** and **Deborah A. Terry** document the first Baltimore County record of *Papilio palamedes* (Drury) (Palamedes Swallowtail). **Timothy Foard** presents his studies of the Formicidae (ants) of Hart-Miller Island.

## Acknowledgement and Dedication

This is my first issue as Editor of ***The Maryland Entomologist***. I wish to acknowledge two former entomology professors at Towson University: my undergraduate professor, **Dr. Theodore W. Suman**, and my graduate professor, **Dr. Aubrey G. Scarbrough**, who both instilled in me an interest in the study of entomology.

I wish to dedicate this issue to the late **Eirik A. T. Blom**, internationally renowned author and editor of numerous ornithological publications, member of the adjunct faculty at The Johns Hopkins University, and close personal friend, who first introduced me to the opportunity of field studies at Hart-Miller Island.

Eugene J. Scarpulla
Editor

# The Creation of Hart-Miller Island, Baltimore County, Maryland

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Hart-Miller Island (HMI) is located in the northern Chesapeake Bay, just off the mouth of Back River (Figure 1). In 1977, the State of Maryland acquired the Hart-Miller Island State Park (HMI-SP), which consisted of the remnants of Hart, Miller and Pleasure Islands (Figure 2). The acquisition resulted in the restoration of both Hart and Miller Islands and the creation of the Hart-Miller Island Dredged Material Containment Facility (HMI-DMCF). The HMI-DMCF was built in response to the Maryland Port Administration's (MPA) need for dredged material placement sites, and since 1984, has been an authorized placement site for dredged material removed from the Port of Baltimore as well as certain reaches of the Baltimore Harbor and Chesapeake Bay navigation channels.

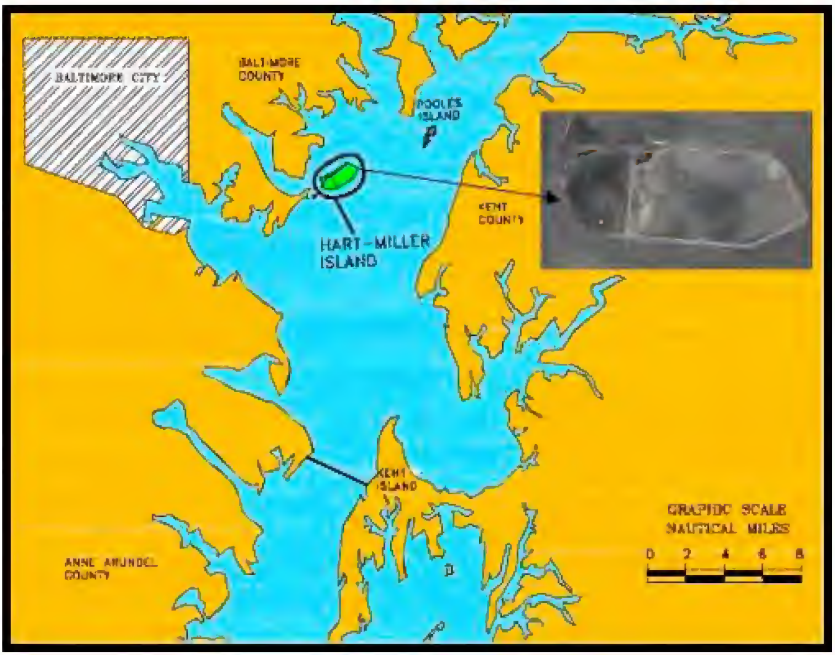


**Figure 1. Map of northern Chesapeake Bay showing Hart-Miller Island.**

The HMI-DMCF is divided into two placement cells, an approximately 324-hectare (800-acre) North Cell and an approximately 121-hectare (300-acre) South Cell. In 1984, when the South Cell began receiving dredged material, approximately 40 hectares (100 acres) of the "original" HMI State Park were restored. The restored area is comprised of tidal wetlands, sandy coastal woodlands and a 914-meter (3,000-foot) section of sandy beach that connects the remnants of Hart and Miller Islands and is located on the western side of the HMI-DMCF. The Maryland Department of Natural Resources (MDNR) operates the HMI-SP.

Approximately 2.3 million cubic meters (3 million cubic yards) of dredged material are placed at the HMI-DMCF annually; the site is expected to hold approximately 76.5 million cubic meters (100 million cubic yards) of dredged material when placement ceases. Operations ceased in the South Cell in 1990 after placement of approximately 12.2 million cubic meters (16 million cubic yards) of dredged material. Inflow of dredged material to the North Cell of the HMI-DMCF will continue until 31 December 2009.

Development of a restoration plan, to convert both the North Cell and South Cell into a passive recreation and wildlife area after dredged material placement operations ceased, was included in the original plans for the construction of the HMI-DMCF. In 1992, the U.S. Army Corps of Engineers, Baltimore District (CENAB) and the State of Maryland began working with local residents and a Technical Review Committee to develop design concepts for restoring the South Cell. In 1997, CENAB initiated a Section 1135 Ecosystem Restoration Study (ERS) and Environmental Assessment (EA) to determine the environmental, engineering, and economic feasibility of modifying and restoring the existing South Cell for wildlife habitat and to identify a non-federal sponsor who would share the cost of implementing the restoration project and maintain the completed project. To meet these goals, a study team consisting of the following members: Chesapeake Bay Critical Area Commission (CAC), Hart-Miller Island Citizens Oversight Committee (HMI-COC), Maryland Department of Agriculture (MDA), MDNR, Maryland Department of the Environment (MDE), Maryland Environmental Service (MES), Maryland Geological Survey (MGS), Maryland Ornithological Society (MOS), MPA, CENAB, U.S. Fish and Wildlife Service (USFWS), and private engineering and environmental consultants was established. The main question posed by the study team was in what capacity the restored cell should function. Although early suggestions ranged from simple revegetation to a theme park, team discussions centered on appropriate natural habitat that would support species deemed to be of "scarcity and significance" in Maryland.

Development of a restoration plan for the South Cell was a collaborative effort between the study team and citizens. After much consideration and guidance from the public, the study team developed a restoration plan that created habitat

for migrating shorebirds, nesting terns, and grassland nesting songbirds. The study team agreed that the South Cell would be developed with upland grassland and wetlands sloping into an extensive pond with a nesting island. The water in the pond would fluctuate to alternately provide open water and mudflat habitat, the timing of which would be managed to provide optimal conditions for migrating shorebirds. The Hart-Miller Island South Cell Section 1135 Ecosystem Restoration Report (ERR) and EA, which recommended the creation of migratory bird habitat in the South Cell, was published in 1999.

The HMI South Cell Environmental Restoration Project (SCERP) is a joint effort between CENAB, MPA, and MDNR to restore the South Cell to a wildlife habitat area, using the preferred restoration plan. Construction began on the SCERP in 2002 and most work was completed by summer 2005. The SCERP was dedicated to the citizens of Maryland on 15 August 2005. The SCERP encompasses approximately 121 hectares (300 acres), which have been restored to 32 hectares (80 acres) of upland grasses and shrubs, 81 hectares (200 acres) of wetlands and mudflats, a 0.4-hectare (1-acre) nesting island, and a 6-hectare (15-acre) pond designed for use as wildlife habitat and passive recreation. The mudflat area of the SCERP was designed to be mechanically flooded using water from the Chesapeake Bay to ensure that the established wetlands/mudflats and ponds do not dry out. A pumped water system is used to maintain the water at the specified levels for seasonal habitat creation, specifically during important shorebird migration periods. The pump system has the advantage of eliminating stagnant water, which can contribute to avian diseases. This type of water supply was also designed to minimize cracking soil, which would otherwise be excellent habitat for mosquito development. A hydration sprinkler system, which draws water from a 2-hectare (5-acre) holding pond along the western edge of the SCERP, is used to maintain moisture on the mudflats during drawdown periods.

In late 2003, Bay water was pumped into the South Cell impoundment, the mudflats were flooded to a crest elevation of 5.9 meters (19.5 feet) Mean Lower Low Water (MLLW) and a large expanse of shallow water (pond) habitat was created. The SCERP remained flooded until July 2007 when Spillway 003, which discharges water from the South Cell under a State Industrial Discharge Permit, was opened and a target pond water elevation of 5.3 meters (17.5 feet) MLLW was met by mid-August 2007. The first exposure of the South Cell mudflats appeared successful and attracted many shorebirds by providing food and a resting place during the fall migration. Drawdowns will continue to be conducted on an annual basis.

Planning is currently underway for development of wildlife habitat in the North Cell of the HMI-DMCF once dredged material placement ceases in 2009. Since the SCERP has been so successful, State and Federal regulatory and resource agencies, private engineering and environmental consultants, and citizens have agreed that the North Cell should be developed in a similar manner.

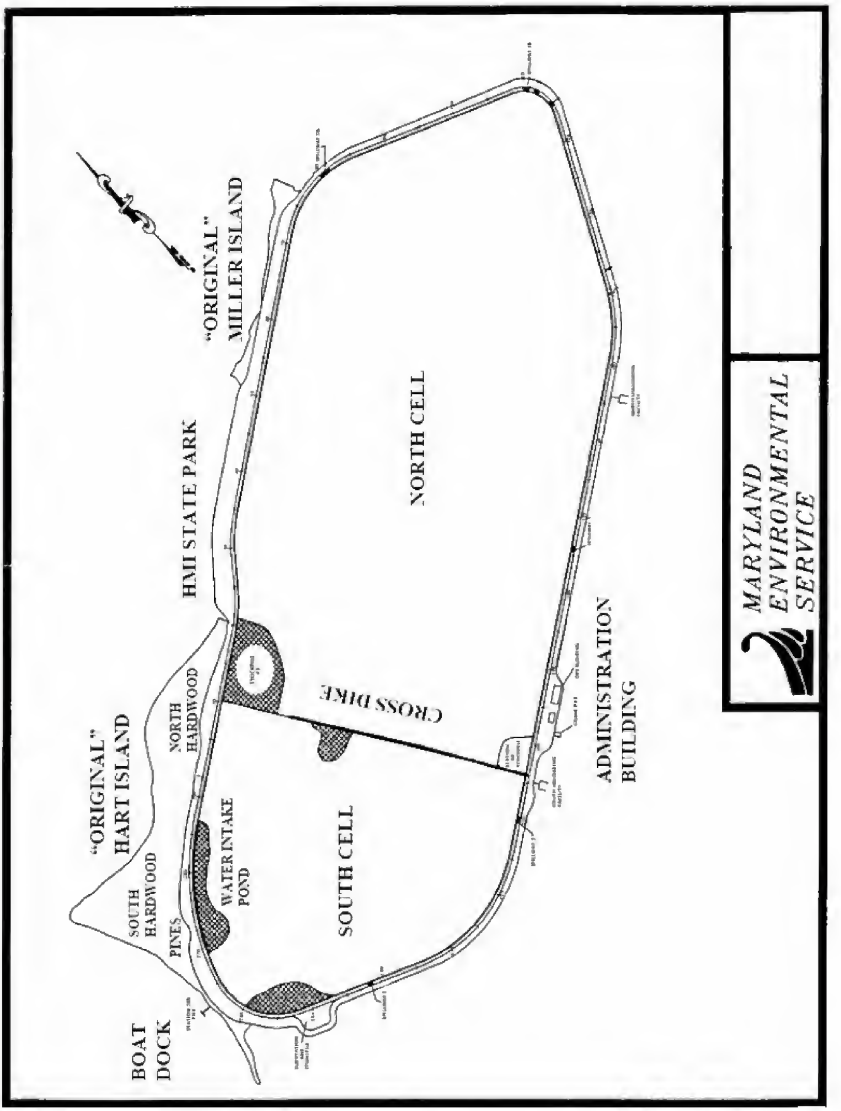


**Figure 2. Map of Hart-Miller Island showing site locations.**
*(Editor's Note: Please use this map as a reference for locations cited in the seven Hart-Miller Island articles in this issue of* ***The Maryland Entomologist****.)*

# A Preliminary Annotated Checklist of the Insects of Hart-Miller Island, Baltimore County, Maryland

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**ABSTRACT:** In 1983, members of the Maryland Ornithological Society began conducting weekly bird surveys at Hart-Miller Island. Beginning in 1998, butterflies were added to the weekly surveys. In 2000, dragonflies and damselflies were added. In 2005, observations of other insect species began to be documented. In addition to the above surveys, members of the Maryland Entomological Society scheduled two collecting trips to the island on 9 September 2006 and 16 June 2007. Additionally, six historic beetle records from the 1980s are included in this article. The article summarizes the known insect fauna which has been observed or collected on Hart-Miller Island by the various members of the Maryland Entomological Society and the Maryland Ornithological Society from 1983 through 2007.

## METHODS

While there was no strict protocol for surveying the insect fauna of Hart-Miller Island, there was a general pattern that was followed each week. The Maryland Environmental Service provided boat access to the island on Saturdays when their employees were scheduled to work. This access was available throughout most of the year. The employees were generally on the island from 0700 hours to 1700 hours. This allowed the volunteers 10 hours of faunal survey work per day. On most days, the volunteers slowly walked a 6-mile circuit around the perimeter of the island logging all of the mammal, bird, reptile, amphibian, butterfly, dragonfly, and damselfly species observed or heard. Since 2005, incidental insect species were also recorded. Most species were identified in the field. Less identifiable species were collected and identified as soon as practical with available field guides. Problematic species were either photographed or collected and then identified by microscopic analysis, consulting internet resources, or contacting taxon experts.

The two Maryland Entomological Society collecting trips concentrated on the South Cell and State Park areas of the island. The participants were on the island from approximately 1000 hours until 1500 hours. Numbers per individual species were not recorded on these two trips.

## SUMMARY OF CLASS INSECTA

To date, 182 species of insects have been identified on Hart-Miller Island. The work has concentrated on Lepidoptera (butterflies primarily) and Odonata (dragonflies and damselflies). There has also been a recent intensive study of Family Formicidae (ants) by Timothy Foard. *(See the accompanying article by T. Foard [2008] in this issue.)* Each species entry includes the number of observation records (i.e. observation days), the monthly range of observations, and the maximum number observed on any one day. No attempt was made to show yearly trends due to the variable coverage during the survey period.

## ORDER ODONATA: Dragonflies, Damselflies

### SUBORDER ANISOPTERA: Dragonflies

**Family Aeshnidae: Darners**

*Anax junius* (Drury) – Common Green Darner. 104 records (14 APR – 4 NOV); max 66 (5 AUG 2006)

*Anax longipes* Hagen – Comet Darner. 1 record (14 JUL 2001); max 1

*Epiaeschna heros* (Fabricius) – Swamp Darner. 5 records (3 JUN – 10 SEP); max 8 (23 JUL 2005)

**Family Libelellulidae: Skimmers**

*Libellula lydia* Drury – Common Whitetail. 15 records (10 JUL – 17 SEP); max 4 (25 AUG 2001)

*Libellula pulchella* Drury – Twelve-spotted Skimmer. 24 records (26 MAY – 22 SEP); max 31 (21 AUG 2005)

*Libellula semifasciata* Burmeister – Painted Skimmer. 1 record (26 MAY 2007); max 1

*Libellula needhami* Westfall – Needham's Skimmer. 59 records (20 MAY – 30 SEP); max 448 (5 AUG 2005)

*Libellula vibrans* Fabricius – Great Blue Skimmer. 3 records (3 JUN – 16 SEP); max 2 (3 JUN 2000)

*Libellula incesta* Hagen – Slaty Skimmer. 1 record (26 AUG 2000); max 2

*Sympetrum rubicundulum* (Say) – Ruby Meadowhawk. 3 records (7 OCT – 4 NOV); max 17 (7 OCT 2000)

*Erythrodiplax minuscula* (Rambur) – Little Blue Dragonlet. 1 record (30 JUN 2007); max 2; first Baltimore County sighting

*Erythrodiplax berenice* (Drury) – Seaside Dragonlet. 19 records (3 JUN – 2 OCT); max 12 (11 JUN 2005 & 11 AUG 2007)

*Perithemis tenera* (Say) – Eastern Amberwing. 3 records (10 JUL – 12 AUG); max 2 (5 AUG 2006 & 12 AUG 2006)

*Pachydiplax longipennis* (Burmeister) – Blue Dasher. 58 records (3 JUN – 2 OCT); max 325 (23 JUL 2005)

*Erythemis simplicicollis* (Say) – Eastern Pondhawk. 33 records (3 JUN – 21 OCT); max 156 (5 AUG 2006)

*Pantala flavescens* (Fabricius) – Wandering Glider. 31 records (22 MAY – 29 SEP); max 19 (21 JUL 2001)

*Pantala hymenaea* (Say) – Spot-winged Glider. 17 records (3 JUN – 1 OCT); max 200 (3 JUN 2000 & 26 AUG 2006)

*Tramea lacerata* Hagen – Black Saddlebags. 90 records (8 MAY – 21 OCT); max 79 (9 JUL 2005)

*Tramea carolina* (Linnaeus) – Carolina Saddlebags. 25 records (3 JUN – 15 OCT); max 6 (13 AUG 2005)

*Celithemis eponina* (Drury) – Halloween Pennant. 30 records (16 JUN – 21 AUG); max 26 (14 JUL 2007)

*Celithemis elisa* (Hagen) – Calico Pennant. 6 records (26 MAY – 25 AUG); max 8 (3 JUN 2000)

## SUBORDER ZYGOPTERA: Damselflies

### Family Coenagrionidae: Pond Damsels

*Enallagma signatum* (Hagen) – Orange Bluet. 3 records (22 JUL – 19 AUG); max 2 (12 AUG 2000)

*Enallagma civile* (Hagen) – Familiar Bluet. 50 records (3 JUN – 10 NOV); max 350 (22 JUL 2000)

*Enallagma doubledayi* (Selys) – Atlantic Bluet. 1 record (9 SEP 2006); max 1; first Baltimore County record

*Ischnura posita* Hagen – Fragile Forktail. 1 record (9 SEP 2006)

*Ischnura ramburii* (Selys) – Rambur's Forktail. 64 records (29 APR – 21 OCT); max 10,000s (17 JUL 2004)

## ORDER ORTHOPTERA: Grasshoppers, Crickets, Katydids

### SUBORDER CAELIFERA: Grasshoppers

**Family Acrididae: True Grasshoppers, Locusts**

*Dissosteira carolina* (Linnaeus) – Carolina Grasshopper. 9 records (16 JUN – 9 SEP); max 14 (11 AUG 2007)

*Trimerotropis maritima* (Harris) – Seaside Grasshopper. 6 records (16 JUN – 9 SEP); max 6 (23 JUN 2007)

*Melanoplus differentialis* (Thomas) – Differential Grasshopper. 1 record (9 SEP 2006)

### SUBORDER ENSIFERA: Katydids, Crickets, Gryllacridoids

**Family Gryllidae: True Crickets**

*Gryllus pennsylvanicus* Burmeister – Fall Field Cricket. 4 records (22 SEP – 20 OCT); many singing during this period (2007)

*Gryllus rubens* Scudder – Southeastern Field Cricket. 1 record (9 SEP 2006)

*Gryllus veletis* (Alexander & Bigelow) – Spring Field Cricket. 1 record (16 JUN 2007)

## ORDER MANTODEA: Mantids

**Family Mantidae**

*Stagmomantis carolina* (Johannson) – Carolina Mantid. 3 egg case records (16 JUN – 6 OCT); max 5 (7 JUL 2007)

*Tenodera aridifolia* Saussure – Chinese Mantid. 1 egg case record (9 SEP 2006); max 1

## ORDER HEMIPTERA: True Bugs, Cicadas, Hoppers, Psyllids, Whiteflies, Aphids, Scale Insects

### Family Lygaeidae: Seed Bugs, Chinch Bug, Milkweed Bugs

*Neacoryphus bicrucis* (Say) – White-crossed Seed Bug. 1 record (1 JUL 2006); max 1

*Oncopeltus fasciatus* (Dallas) – Large Milkweed Bug. 14 records (17 JUN – 20 OCT); max 77 adults (18 AUG 2007), 1000s larvae (6 OCT 2007)

*Lygaeus kalmii* Stål – Small Milkweed Bug. 6 records (16 JUN – 26 AUG); max 3 adults (11 AUG 2007 & 18 AUG 2007), 30 larvae (11 AUG 2007)

### Family Pentatomidae: Stink Bugs

*Murgantia histronica* (Hahn) – Harlequin Bug. 2 records (11 AUG – 18 AUG); max 76 larva (11 AUG 2007), 3 adults (18 AUG 2007)

*Halyomorpha halys* (Stål) – Brown Marmorated Stink Bug. 1 record (23 JUN 2007); max 1; first Baltimore County record; specimen donated to Maryland Department of Agriculture collection

### Family Cicadidae: Cicadas

*Tibicen chloromera* (Walker) – Swamp Cicada. 1 record (9 SEP 2006)

## ORDER COLEOPTERA: Beetles

### Family Cicindelidae: Tiger Beetles

*Cicindela repanda repanda* Dejean – Bronzed Tiger Beetle. 6 records (29 APR – 6 OCT); max 75 (22 SEP 2007)

*Cicindela hirticollis hirticollis* Say – Hairy-necked Tiger Beetle. 2 records (16 JUN – 9 SEP)

*Cicindela punctulata punctulata* Olivier – Punctured Tiger Beetle. 6 records (16 JUN – 21 JUL); max 8 (21 JUL 2007)

*Cicindela dorsalis dorsalis* Say – Eastern Beach Tiger Beetle. In late May to early summer of 1984 or 1985, Gail B. Mackiernan, while employed by the U.S. Army Corps of Engineers, conducted a habitat survey of Hart-Miller Island and observed a number of *C. d. dorsalis* on the "original" Hart Island beach (Mackiernan, personal communication). A search of this area by E.J. Scarpulla in July 2007 did not yield any beetles.

**Family Scarabaeidae: Scarab Beetles**

*Popillia japonica* Newman – Japanese Beetle. 4 records (16 JUN – 11 AUG); max 5 (21 JUL 2007)

*Dynastes tityus* (Linnaeus) – Eastern Hercules Beetle. 1 record (14 JUL 2007); max 1

*Cotinis nitida* (Linnaeus) – Green June Beetle. 1 record (8 JUL 2006); max 1

**Family Cantharidae: Soldier Beetles**

*Chauliognathus pennsylvanicus* DeGeer – Pennsylvania Leatherwing. 3 records (26 MAY 2007 – 30 JUN 2007); max 1

**Family Phalacridae: Shining Flower Beetles**

*Stilbus nitidus* (Melsheimer) – no common name. 1 record (8 NOV 1987); 1 collected by Warren E. Steiner, Jil M. Swearingen, and C. Douglas Hackman (Steiner, personal communication)

**Family Coccinellidae: Lady Beetles**

*Chilocorus stigma* (Say) – Twice-stabbed Lady Beetle. 1 record (6 OCT 2007); max 1

*Coleomegilla maculata* Timberlake – Pink Spotted Lady Beetle. 1 record (18 AUG 2007); max 1

*Hippodamia convergens* Guérin – Convergent Lady Beetle. 2 records (7 JUL – 6 OCT); max 2 (6 OCT 2007)

*Coccinella septempunctata* Linnaeus – Seven-spotted Lady Beetle. 9 records (16 JUN – 15 SEP); max 20 (11 AUG 2007)

*Harmonia axyridis* (Pallas) – Multicolored Asian Lady Beetle. 7 records (16 JUN – 22 SEP); max 10 (18 AUG 2007)

*Epilachna varivestis* Mulsant – Mexican Bean Beetle. 1 record (6 OCT 2007); max 1

**Family Tenebrionidae: Darkling Beetles**

*Blapstinus metallicus* (Fabricius) – no common name. 2 records: (31 MAY 1987), 4 collected by W. E. Steiner and J. M. Swearingen; (8 NOV 1987), 6 collected by W. E. Steiner, J. M. Swearingen, and C. D. Hackman (Steiner, personal communication)

*Platydema ruficorne* (Sturm) – Red-horned Grain Beetle. 1 record (8 NOV 1987); 2 collected by W. E. Steiner, J. M. Swearingen, and C. D. Hackman (Steiner, personal communication)

*Neatus tenebrioides* (Beauvois) – no common name. 1 record (8 NOV 1987); 1 collected by W. E. Steiner, J. M. Swearingen, and C. D. Hackman (Steiner, personal communication)

**Family Cerambycidae: Long-horned Beetles**

*Tetraopes tetraophthalmus* (Forster) – Red Milkweed Beetle. 3 records (16 JUN – 14 JUL); max 2 (30 JUN 2007 & 14 JUL 2007)

**Family Chrysomelidae: Leaf Beetles, Flea Beetles, Rootworms, Seed Beetles**

*Diabrotica undecimpunctata howardi* Barber – Spotted Cucumber Beetle. 1 record (7 JUL 2007), max 1

*Chelymorpha cassidea* Linnaeus – Argus Tortoise Beetle. 2 records (30 JUN – 7 JUL); max 1

*Acanthoscelides floridae* (Horn) – no common name. 1 record (8 NOV 1987); 92 collected by W. E. Steiner, J. M. Swearingen, and C. D. Hackman; reared from dry pods of *Amorpha fruticosa* Linnaeus (false indigo) (Steiner, personal communication)

## ORDER LEPIDOPTERA: True Butterflies, Skippers, Moths

**Superfamily Papilionoidea: True Butterflies**

**Family Papilionidae: Swallowtails**

*Battus philenor* (Linnaeus) – Pipevine Swallowtail. 17 records (30 JUN – 8 SEP); max 15 (10 JUL 1999)

*Eurytides marcellus* (Cramer) – Zebra Swallowtail. 4 records (2 JUL – 4 SEP); max 1

*Papilio polyxenes* Stoll – Black Swallowtail. 80 records (26 APR – 29 SEP); max 40 (5 AUG 2006)

*Papilio cresphontes* Cramer – Giant Swallowtail. 1 record (10 SEP 2005); max 1

*Papilio glaucus* Linnaeus – Eastern Tiger Swallowtail. 37 records (26 APR – 9 SEP); max 15 (29 JUL 2006)

*Papilio troilus* Linnaeus – Spicebush Swallowtail. 42 records (6 MAY – 16 SEP); max 7 (30 JUL 2005)

*Papilio palamedes* (Drury) – Palamedes Swallowtail. 1 record (3 SEP 2005); max 1; first Baltimore County record

**Family Pieridae: Whites and Yellows**

*Pontia protodice* (Boisduval & LeConte) – Checkered White. 26 records (11 MAY – 9 OCT); max 17 (7 AUG 2004)

*Pieris rapae* (Linnaeus) – Cabbage White. 184 records (9 MAR – 1 DEC); max 1000 (3 JUN 2000)

*Colias philodice* Godart – Clouded Sulphur. 76 records (10 APR – 30 DEC); max 26 (12 SEP 1998)

*Colias eurytheme* Boisduval – Orange Sulphur. 183 records (31 MAR – 9 DEC); max 307 (1 OCT 2005)

*Phoebis sennae* (Linnaeus) – Cloudless Sulphur. 75 records (26 MAY – 24 OCT); max 73 (12 SEP 1998)

*Eurema lisa* (Boisduval & LeConte) – Little Yellow. 28 records (8 JUL – 20 OCT); max 32 (8 SEP 2001)

*Eurema nicippe* (Cramer) – Sleepy Orange. 1 record (9 SEP 2006); max 1

**Family Lycaenidae: Gossamer Wings**

*Calycopis cecrops* (Fabricius) – Red-banded Hairstreak. 4 records (29 JUL – SEP 9); max 2 (5 AUG 2000)

*Parrhasius m-album* (Boisduval & LeConte) – White M Hairstreak. 6 records (1 JUN – 14 OCT); max 7 (5 AUG 2000)

*Strymon melinus* (Hübner) – Gray Hairstreak. 84 records (10 APR – 15 OCT); max 55 (10 SEP 2005)

*Everes comyntas* (Godart) – Eastern Tailed Blue. 54 records (28 APR – 1 OCT); max 71 (21 AUG 2005)

*Celastrina ladon* (Cramer) – Spring Azure. 7 records (10 APR – 19 JUN); max 7 (7 MAY 2005)

*Celastrina ladon* form "neglecta" (W. H. Edwards) – Summer Azure. 19 records (3 JUN – 22 SEP); max 7 (5 AUG 2000)

**Family Libytheidae: Snout Butterflies**

*Libytheana carinenta* (Cramer) – American Snout. 16 records (19 JUN – 3 NOV); max 7 (5 AUG 2000)

**Family Nymphalidae: Brush-footed Butterflies**

*Euptoieta claudia* (Cramer) – Variegated Fritillary. 87 records (6 MAY – 1 DEC); max 55 (3 JUN 2000)

*Speyeria cybele* (Fabricius) – Great Spangled Fritillary. 2 records (26 AUG – 9 SEP); max 1

*Phyciodes tharos* (Drury) – Pearl Crescent. 85 records (24 APR – 26 NOV); max 202 (10 SEP 2005)

*Polygonia interrogationis* (Fabricius) – Question Mark. 6 records (12 MAY – 12 OCT); max 1

*Polygonia comma* (Harris) – Eastern Comma. 6 records (14 APR – 24 OCT); max 2 (14 APR 2001 & 21 OCT 2006)

*Nymphalis antiopa* (Linnaeus) – Mourning Cloak. 14 records (17 APR – 15 OCT); 20 (2 JUN 2001)

*Vanessa virginiensis* (Drury) – American Lady. 52 records (14 APR – 1 DEC); max 6 (14 APR 2001, 28 APR 2001, & 20 OCT 2001)

*Vanessa cardui* (Linnaeus) – Painted Lady. 38 records (8 MAY – 26 NOV); max 45 (20 OCT 2001)

*Vanessa atalanta* (Fruhstorfer) – Red Admiral. 58 records (14 APR – 4 NOV); max 338 (8 SEP 2001)

*Junonia coenia* Hübner – Common Buckeye. 80 records (17 JUN – 1 DEC); max 65 (20 OCT 2007)

*Limenitis arthemis astyanax* (Fabricius) – Red-spotted Purple. 32 records (3 JUN – 22 SEP); max 8 (26 AUG 2000)

*Limenitis archippus* (Cramer) – Viceroy. 24 records (22 MAY – 1 OCT); max 7 (27 AUG 2005)

*Cercyonis pegala* (Fabricius) – Common Wood Nymph (southern/coastal "pegala" type). 4 records (1 JUL – 16 SEP); max 2 (1 JUL 2006 & 16 SEP 2006)

*Danaus plexippus* (Linnaeus) – Monarch. 129 adult records (6 MAY – 1 DEC); max 3000 (15 SEP 2001). 3 caterpillar records; max 6 (8 SEP 2007)

**Superfamily Hesperioidea: Skippers**

**Family Hesperiidae: Skippers**

*Epargyreus clarus* (Cramer) – Silver-spotted Skipper. 35 records (6 MAY – 29 SEP); max 29 (5 AUG 2006)

*Urbanus proteus* (Linnaeus) – Long-tailed Skipper. 1 record (24 SEP 2005); max 1

*Thorybes bathyllus* (J. E. Smith) – Southern Cloudywing. 1 record (22 MAY 1999); max 1

*Erynnis juvenalis* (Fabricius) – Juvenal's Duskywing. 2 records (10 APR – 6 MAY); max 1

*Erynnis horatius* (Scudder & Burgess) – Horace's Duskywing. 1 record (21 JUL 2007); max 4

*Erynnis baptisiae* (Forbes) – Wild Indigo Duskywing. 11 records (21 JUL – 30 SEP); max 11 (29 JUL 2006)

*Pyrgus communis* (Grote) – Common Checkered Skipper. 7 records (3 JUN – 5 NOV); max 3 (24 SEP 2005)

*Pholisora catullus* (Fabricius) – Common Sootywing. 33 records (7 MAY – 22 SEP); max 30 (7 AUG 2004)

*Lerema accius* (J. E. Smith) – Clouded Skipper. 4 records (24 JUL – 16 SEP); max 2 (4 SEP 2004)

*Ancyloxypha numitor* (Fabricius) – Least Skipper. 40 records (26 MAY – 2 OCT); max 74 (8 SEP 2007)

*Hylephila phyleus* (Drury) – Fiery Skipper. 6 records (1 SEP – 1 OCT); max 11 (1 OCT 2005)

*Polites peckius* (Cramer) – Peck's Skipper. 1 record (10 SEP 2005); max 2

*Atalopedes campestris* (Boisduval) – Sachem. 19 records (21 JUL – 1 OCT); max 37 (10 SEP 2005)

*Poanes viator* (Edwards) – Broad-winged Skipper. 16 records (16 JUN – 8 SEP); max 8 (5 AUG 2000)

*Panoquina ocola* (Edwards) – Ocola Skipper. 2 records (10 SEP – 1 OCT); max 4 (1 OCT 2005)

**(former Suborder Heterocera): Moths (Including {Caterpillars} and [Hodges numbers])**

**Superfamily Yponomeutoidea**

**Family Yponomeutidae: Ermine Moths**

*Atteva punctella* (Cramer) – Ailanthus Webworm Moth [#2401]. 5 records (21 JUL – 3 NOV); max 85 (3 NOV 2001)

**Superfamily Pyraloidea**

**Family Crambidae: Crambid Snout Moths**

*Crocidophora serratissimalis* Zeller – no common name [#4944]. 1 record (16 JUN 2007)

*Spoladea recurvalis* (Fabricius) – Hawaiian Beet Webworm Moth {Hawaiian Beet Webworm} [#5170]. 1 record (1 OCT 2005); max 1

*Urola nivalis* (Drury) – Snowy Urola Moth [#5464]. 1 record (16 JUN 2007)

**Superfamily Geometroidea**

**Family Geometridae: Geometer Moths**

*Haematopis grataria* (Fabricius) – Chickweed Geometer Moth [#7146]. 4 records (13 AUG – 1 OCT); max abundant (24 SEP 2005)

**Superfamily Bombycoidea**

**Family Saturniidae: Giant Silkworm Moths**

*Antheraea polyphemus* (Cramer) – Polyphemus Moth [#7757]. 1 caterpillar record (24 SEP 2005); max 1

*Actias luna* (Linnaeus) – Luna Moth [#7758]. 1 record (5 AUG 2000); max 1

**Family Sphingidae: Sphinx or Hawk Moths**

*Hemaris thysbe* (Fabricius) – Hummingbird Clearwing Moth [#7853]. 1 record (9 SEP 2006)

*Hemaris diffinis* (Boisduval) – Snowberry Clearwing Moth [#7855]. 1 record (3 SEP 2005); max 1

*Eumorpha achemon* (Drury) – Achemon Sphinx Moth [#7861]. 1 caterpillar record (3 SEP 2005); max 1

**Superfamily Noctuoidea**

**Family Notodontidae: Prominent Moths**

*Datana perspicua* Grote & Robinson – Spotted Datana Moth [#7908]. 6 caterpillar records (5 AUG – 1 OCT); max 613 (12 AUG 2006)

**Family Arctiidae: Tiger Moths**

*Pyrrharctia isabella* (J E Smith) – Isabella Tiger Moth {Woolly Bear} [#8129]. 32 caterpillar records (13 AUG – 15 DEC); max 41 (21 OCT 2000)

*Estigmene acrea* (Drury) – Salt Marsh Moth {Salt Marsh Caterpillar} [#8131]. 23 caterpillar records (23 JUN – 27 OCT); max 24 (8 JUL 2006)

*Spilosoma virginica* (Fabricius) – Virginian Tiger Moth {Yellow Bear} [#8137]. 14 caterpillar records (27 AUG – 4 NOV); max 10 (6 OCT 2007). 1 adult record (27 AUG 2005); max 1

*Hyphantria cunea* (Drury) – Fall Webworm Moth {Fall Webworm} [#8140]. 3 caterpillar records (5 AUG – 19 AUG); max 606 (12 AUG 2006)

*Cycnia tenera* Hübner – Delicate Cycnia Moth [#8230]. 1 record (30 JUN 2007); max 1

*Euchaetes egle* (Drury) – Milkweed Tussock Moth [#8238]. 7 caterpillar records (8 JUL – 9 SEP); max 336 (19 AUG 2006)

*Ctenucha virginica* (Esper) – Virginia Ctenucha Moth [#8262]. 7 records (3 JUN – 16 JUL); max 6 (3 JUN 2006)

*Cisseps fulvicollis* (Hübner) – Yellow-collared Scape Moth [#8267]. 52 records (30 JUN – 1 DEC); max 180 (15 OCT 2005)

**Family Erebidae: Erebid Moths**

*Hypena baltimoralis* (Guenée) – Baltimore Bomolocha Moth [#8442]. 5 records (29 APR – 9 SEP); max 4 (3 JUN 2006)

*Hypena scabra* (Fabricius) – Green Cloverworm Moth {Green Cloverworm} [#8465]. 1 record (9 SEP 2006)

*Caenurgina crassiuscula* (Haworth) – Clover Looper Moth {Clover Looper} [#8738]. 2 records (13 AUG – 27 AUG), max a few (27 AUG 2005)

*Caenurgina erechtea* (Cramer) – Forage Looper Moth {Forage Looper} [#8739]. 1 record (16 JUN 2007)

**Family Noctuidae: Noctuid Moths**

*Pseudoplusia includens* (Walker) – Soybean Looper Moth {Soybean Looper} [#8890]. 1 record 24 SEP 2005); max 1

*Tarachidia candefacta* (Hübner) – Olive-shaded Bird-Dropping Moth [#9090]. 3 records (17 JUN – 27 AUG); max numerous (27 AUG 2005)

*Spragueia leo* (Guenée) – Common Spragueia Moth [#9131]. 1 record (13 AUG 2005); max 2

*Acronicta oblinita* (J E Smith) – Smeared Dagger Moth {Smartweed Caterpillar} [#9272]. 7 caterpillar records (22 SEP – 15 OCT); max 8 (15 OCT 2005)

*Alypia octomaculata* (Fabricius) – Eight-spotted Forester Moth [#9314]. 2 records (7 MAY – 29 JUL); max 1 (7 MAY 2005 & 29 JUL 2006)

*Papaipema nebris* (Guenée) – Stalk Borer Moth {Stalk Borer} [#9496]. 1 record (24 SEP 2005); max 1

*Melanchra picta* (Harr) – Zebra Caterpillar Moth {Zebra Caterpillar} [#10293]. 5 caterpillar records (1 OCT – 20 OCT); max 39 (6 OCT 2007)

*Noctua pronuba* (Linnaeus) – Large Yellow Underwing Moth [#11012.1]. 2 records (30 JUN – 8 SEP); max 1 (30 JUN 2007 & 8 SEP 2007);

*Heliothis virescens* (Fabricius) – Tobacco Budworm Moth {Tobacco Budworm} [#11071]. 1 record (24 SEP 2005); max 1

## ORDER HYMENOPTERA: Velvet Ants, Ants, Wasps, Bees

### Family Mutillidae: Velvet Ants

*Dasymutilla occidentalis* (Linnaeus) – Red Velvet Ant. 5 records (21 JUL – 9 SEP); max 1

### Family Formicidae: Ants

*Ponera pennsylvanica* Buckley – no common name. 1 record (9 SEP 2006)

*Proceratium silaceum* Roger – no common name. 1 record (16 JUN 2007 or 7 JUL 2007)

*Aphaenogaster fulva* Roger – no common name. 1 record (16 JUN 2007 or 7 JUL 2007)

*Aphaenogaster rudis* (Enzmann) – no common name. 1 record (9 SEP 2006)

*Aphaenogaster tennesseensis* (Mayr) – no common name. 1 record (9 SEP 2006)

*Crematogaster lineolata* (Say) – an acrobat ant. 1 record (9 SEP 2006)

*Crematogaster pilosa* Emery – an acrobat ant. 1 record (9 SEP 2006)

*Monomorium minimum* (Buckley) – Little Black Ant. 1 record (9 SEP 2006)

*Myrmecina americana* Emery – no common name. 1 record (16 JUN 2007 or 7 JUL 2007)

*Myrmica punctiventris* Roger – no common name. 1 record (9 SEP 2006)

*Pheidole bicarinata* Mayr – no common name. 1 record (9 SEP 2006)

*Protomognathus americanus* (Emery) – a slave-making ant. 1 record (16 JUN 2007 or 7 JUL 2007)

*Pyramica pulchella* (Emery) – no common name. 1 record (16 JUN 2007 or 7 JUL 2007)

*Pyramica rostrata* (Emery) – no common name. 1 record (16 JUN 2007 or 7 JUL 2007)

*Solenopsis molesta* (Say) – Thief Ant. 1 record (9 SEP 2006)

*Stenamma impar* Forel – no common name. 1 record (16 JUN 2007 or 7 JUL 2007)

*Themnothorax curvispinosus* Roger – no common name. 1 record (9 SEP 2006)

*Tetramorium caespitum* (Linnaeus) – Pavement Ant. 1 record (16 JUN 2007 or 7 JUL 2007)

*Forelius pruinosus* (Roger) – no common name. 1 record (16 JUN 2007 or 7 JUL 2007)

*Tapinoma sessile* (Say) – Odorus House Ant. 1 record (9 SEP 2006)

*Camponotus castaneus* (Latreille) – no common name. 1 record (16 JUN 2007 or 7 JUL 2007)

*Camponotus impressa* Roger – no common name. 1 record (16 JUN 2007 or 7 JUL 2007)

*Camponotus nearcticus* Emery – Smaller Carpenter Ant. 1 record (9 SEP 2006)

*Camponotus subarbatus* Emery – no common name. 2 records (16 JUN 2007 or 7 JUL 2007; 9 SEP 2006)

*Lasius alienus* (Foerster) – Cornfield Ant. 1 record (9 SEP 2006)

*Lasius interjectus* (Mayr) – no common name. 1 record (16 JUN 2007 or 7 JUL 2007)

*Lasius neoniger* Emery – no common name. 1 record (9 SEP 2006)

*Lasius umbratus* (Nylander) – no common name. 1 record (16 JUN 2007 or 7 JUL 2007)

*Paratrechina faisonensis* (Forel) – no common name. 1 record (9 SEP 2006)

*Prenolepsis imparis* (Say) – Honey Ant. 1 record (16 JUN 2007 or 7 JUL 2007)

**Family Vespidae: Wasps, Yellowjackets, Hornets**

*Monobia quadridens* (Linnaeus) – a mason wasp. 2 records (16 JUN – 30 JUN); max 3 (30 JUN 2007)

*Polistes dorsalis* (Fabricius) – a paper wasp. 1 record (16 JUN 2007)

*Polistes fuscatus* (Fabricius) – a paper wasp. 1 record (16 JUN 2007)

**Family Sphecidae: Sphecid Wasps**

*Sphex ichneumoneus* (Linnaeus) – Great Golden Digger Wasp. 1 record (9 SEP 2006)

**Family Halictidae: Halictid Bees, Sweat Bees**

*Agapostemon splendens* (Lepeletier) – a metallic green bee. 1 record (16 JUN 2007)

**Family Apidae: Honeybees, Bumblebees, Carpenter Bees**

*Bombus griseocollis* (DeGeer) – Brownbelted Bumble Bee. 1 record (16 JUN 2007)

*Apis mellifera* Linnaeus – Honey Bee. 3 records (16 JUN – 18 AUG); max 5 (18 AUG 2007)

## MARYLAND RARE, THREATENED, AND ENDANGERED SPECIES

Five Maryland rare, threatened, and endangered species have occurred on Hart-Miller Island – two Odonata, one Coleoptera, and two Lepidoptera.

*Erythrodiplax minuscula* (Rambur) – Little Blue Dragonlet. 1 record (30 JUN 2007); max 2. (State Rank: **S1** – Highly State Rare) *(See the accompanying article by E.J. Scarpulla [2008] in this issue.)*

*Enallagma doubledayi* (Selys) – Atlantic Bluet. 1 record (9 SEP 2006); max 1. (State Rank: **SH** – Historically known from Maryland) *(See the accompanying article by R.L. Orr [2008] in this issue.)*

*Cicindela dorsalis dorsalis* Say – Eastern Beach Tiger Beetle. In late May to early summer of 1984 or 1985, Gail B. Mackiernan, while employed by the U.S. Army Corps of Engineers, conducted a habitat survey of Hart-Miller Island and observed a number of *C. d. dorsalis* on the "original" Hart Island beach. (Mackiernan, personal communication) (State Rank: **S1** – Highly State Rare; State Status: **E** – Endangered) A search of this area by E.J. Scarpulla in July 2007 did not yield any beetles.

*Papilio cresphontes* Cramer – Giant Swallowtail. 1 record (10 SEP 2005); max 1. (State Rank: **S2** – State Rare; State Status: **I** – In Need of Conservation) *(See the accompanying article by W.J. Hubick [2008] in this issue.)*

*Papilio palamedes* (Drury) – Palamedes Swallowtail. 1 record (3 SEP 2005); max 1. (State Rank: **S1** – Highly State Rare; State Status: **E** – Endangered) *(See the accompanying article by M.R. Watson and D.A. Terry [2008] in this issue.)*

## SUMMARY

This compilation of 182 species is a preliminary list of the insects of Hart-Miller Island. The species breakdown by order shows the following: Odonata (26), Orthoptera (6), Mantodea (2), Hemiptera (6), Coleoptera (22), Lepidoptera (82) and Hymenoptera (38). The surveys have been conducted almost exclusively during the daytime. Other than the Formicidae, the nocturnal fauna has not been surveyed. Lepidoptera and Odonata have been surveyed over the longest period. As more survey work is conducted, this list will undoubtedly grow in size resulting in a more complete picture of the insect fauna of Hart-Miller Island.

## ACKNOWLEDGEMENTS

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## LITERATURE CITED

Foard, T. 2008. The ants (Hymenoptera: Formicidae) of Hart-Miller Island, Baltimore County, Maryland. *The Maryland Entomologist* 4(4):42-51.

Hubick, W.J. 2008. Giant Swallowtail, *Papilio cresphontes* Cramer, 1777, on Hart-Miller Island, Baltimore County, Maryland. *The Maryland Entomologist* 4(4):31-33.

Orr, R.L. 2008. A rare Maryland damselfly (Odonata: Coenagrionidae) , *Enallagma doubledayi* (Selys, 1850), Atlantic Bluet, at Hart-Miller Island, Baltimore County, Maryland. *The Maryland Entomologist* 4(4):26-27.

Scarpulla, E.J. 2008. Sighting of Little Blue Dragonlet, *Erythrodiplax minuscula* (Rambur, 1842), at Hart-Miller Island, Baltimore County, Maryland. *The Maryland Entomologist* 4(4):28-30.

Watson, M.R., and D.A. Terry. 2008. First record of Palamedes Swallowtail, *Papilio palamedes* (Drury), 1773, in Baltimore County, Maryland. *The Maryland Entomologist* 4(4):34-41.

## IDENTIFICATION REFERENCES

Allen, T.J., J.P. Brock, and J. Glassberg. 2005. *Caterpillars in the Field and Garden: a field guide to the butterfly caterpillars of North America.* Oxford University Press, New York, NY. 232 pp.

Arnett, Jr., R.H., N.M. Downie, and H.E. Jaques. 1980. *How to Know the Beetles* (second edition). Wm. C. Brown, Dubuque, IA. 416 pp.

Capinera, J.L., R.D. Scott, and T.J. Walker. 2004. *Field Guide to Grasshoppers, Katydids, and Crickets of the United States.* Cornell University Press, Ithaca, NY. 249 pp., 48 plates.

Covell, Jr., C.V. 1984. *A Field Guide to the Moths of Eastern North America.* Peterson Field Guide Series. Houghton Mifflin, Boston, MA. 496 pp. (including 64 plates).

Covell, Jr., C.V. 2005. *A Field Guide to Moths of Eastern North America.* Virginia Museum of Natural History Special Publication Number 12. Martinsville, VA. 496 pp. (including 64 plates).

Downie, N.M., and R.H. Arnett, Jr. 1996. *The Beetles of Northeastern North America* (two volumes). Sandhill Crane Press, Gainesville, FL. 1721 pp.

Dunkle, S.W. 2000. *Dragonflies through Binoculars: a field guide to dragonflies of North America*. Oxford University Press, New York, NY. 266 pp., 47 plates.

Elliott, L., and W. Hershberger. 2007. *The Songs of Insects*. Houghton Mifflin, Boston, MA. 228 pp., 1 CD.

Evans, A.V. 2007. *National Wildlife Federation Field Guide to Insects and Spiders of North America*. Sterling Publishing, New York, NY. 497 pp.

Glassberg, J. 1993. *Butterflies through Binoculars: a field guide to butterflies in the Boston-New York-Washington Region*. Oxford University Press, New York, NY. 160 pp., 40 plates.

Kingsolver, J. M. 2004. *Handbook of the Bruchidae of the United States and Canada (Insecta, Coleoptera)*. USDA Technical Bulletin No. 1912, Vol. 1, 324 pp.; Vol. 2 (Illustrations), 198 pp.

Knisley, C.B., and T.D. Schultz. 1997. *The Biology of Tiger Beetles and a Guide to the Species of the South Atlantic States*. Virginia Museum of Natural History Special Publication Number 5. Martinsville, VA. 210 pp., 16 plates.

Lam, E. 2004. *Damselflies of the Northeast: a guide to the species of eastern Canada and the northeastern United States*. Biodiversity Books, Forest Hills, NY. 96 pp.

Milne, L., and M. Milne. 1980. *The Audubon Society Field Guide to North American Insects and Spiders*. Alfred A. Knopf, New York, NY. 989 pp.

Mitchell, R.T., and H.S Zim. 1964. *Butterflies and Moths*. Golden Nature Guide. Golden Press, New York, NY. 160 pp.

Nature Science Network. 1995. *Video Guide to Eastern Butterflies*. Carrboro, NC. 1 VHS video.

Opler, P.A., and G.O. Krizek. 1984. *Butterflies East of the Great Plains: an illustrated natural history*. The Johns Hopkins University Press, Baltimore, MD. 294 pp., 54 plates.

Opler, P.A., and V. Malikul. 1998. *A Field Guide to Eastern Butterflies*. Peterson Field Guide Series. Houghton Mifflin, Boston, MA. 486 pp. (including 39 plates).

Pearson, D.L., C.B. Knisley, and C.J. Kazilek. 2006. *A Field Guide to the Tiger Beetles of the United States and Canada: identification, natural history, and distribution of the Cicindelidae*. Oxford University Press, New York, NY. 227 pp., 24 plates.

Pyle, R.M. 1981. *The Audubon Society Field Guide to North American Butterflies*. Alfred A. Knopf, New York, NY. 924 pp.

Rannels, S., W. Hershberger, and J. Dillon. 1998. *Songs of Crickets and Katydids of the Mid-Atlantic States: an identification guide*. 1 CD.

Wagner, D.L. 2005. *Caterpillars of Eastern North America: a guide to identification and natural history*. Princeton University Press, Princeton, NJ. 512 pp.

Wagner, D.L., V. Giles, R.C. Reardon, and M.L. McManus. 1997. *Caterpillars of Eastern Forests*. USDA Forest Health Technology Enterprise Team – Morgantown, WV. FHTET-96-34. 113 pp.

Walton, R.K. 1995. *Skippers of the Northeast: a video guide to field identification*. Brownbag Productions, Concord, MA. 1 VHS video.

White, R.E. 1983. *A Field Guide to the Beetles of North America*. Peterson Field Guide Series. Houghton Mifflin, Boston, MA. 368 pp., 12 plates.

Wright, A.B. 1993. *Peterson First Guide to Caterpillars of North America*. Houghton Mifflin, Boston, MA. 128.

Yanega, D. 1996. *Field Guide to Northeastern Longhorned Beetles (Coleoptera: Cerambycidae)*. Illinois Natural History Survey Manual 6. Champaign, IL. 174 pp., 32 plates.

# A Rare Maryland Damselfly (Odonata: Coenagrionidae) *Enallagma doubledayi* (Selys, 1850), Atlantic Bluet, at Hart-Miller Island, Baltimore County, Maryland

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*Enallagma doubledayi* (Selys, 1850) (Atlantic Bluet) is mostly a southeastern species that extends its range along the lower coastal plain as far north as Massachusetts (Dunkle 1990). This somewhat salt-tolerant species shows a strong preference for sandy bottom ponds or temporary pools in its more northern distribution (Westfall and May 2006).

The Maryland Department of Natural Resources Natural Heritage Program has given *Enallagma doubledayi* the State Rank of "SH" (Historically Known in Maryland). Two previously known records of the species in Maryland were from Montgomery County on 1 June 1900 and Prince George's County on 25 August 1916 (Donnelly 1961). The species had never been recorded from Baltimore County.

The author collected a single male *Enallagma doubledayi* (Figure 1) on the thick vegetation surrounding the water intake pond on Hart-Miller Island (Figure 2) on 9 September 2006. Hundreds of *Enallagma civile* (Hagen, 1861) (Familiar Bluet), a nearly identical species, were present which made it difficult finding additional specimens of the Atlantic Bluet.

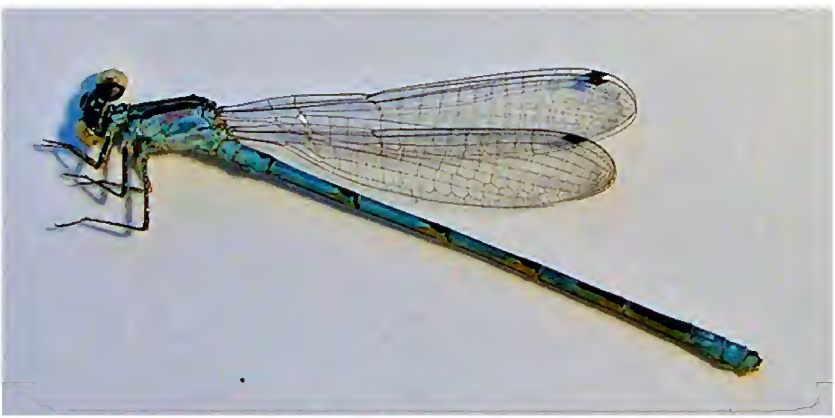

**Figure 1. *Enallagma doubledayi* male collected on Hart-Miller Island.**

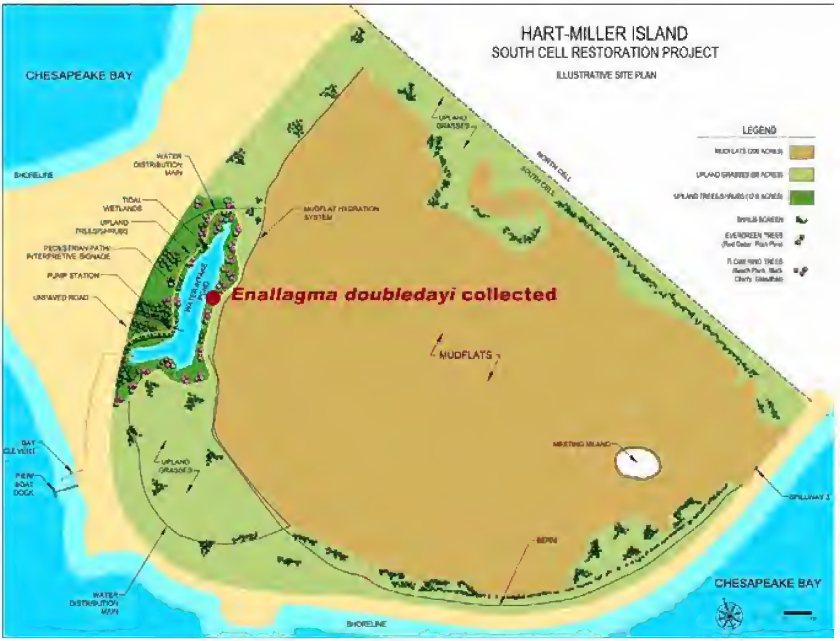


**Figure 2. South Cell of Hart-Miller Island showing *Enallagma doubledayi* collection site.**

*Enallagma doubledayi* is poorly represented in collections from Maryland probably because it is very similar to the more abundant common species *E. civile* and *E. durum* (Hagen 1861) (Big Bluet) which also utilize similar habitats (Lam 2004). There is little doubt that careful examination of the bright blue *Enallagma* species along the sandy bottom, lower-coastal ponds in Maryland will provide more records of the Atlantic Bluet.

## LITERATURE CITED

Donnelly, T.W. 1961. The Odonata of Washington, D.C. and vicinity. *Proceedings of the Entomological Society of Washington* 63 (1):1-13.

Dunkle, S. W. 1990. *Damselflies of Florida, Bermuda and the Bahamas.* Nature Guide No, 3. Scientific Publishers, Gainesville, FL. 148 pp.

Lam, E. 2004. *Damselflies of the Northeast: a guide to the species of eastern Canada and the northeastern United States*. Biodiversity Books, Forest Hills, NY. 96 pp.

Westfall, M. J., Jr., and May, M.L. 2006. *Damselflies of North America* (revised edition). Scientific Publishers, Gainesville, FL. 502 pp.

# Sighting of Little Blue Dragonlet, *Erythrodiplax minuscula* (Rambur, 1842), at Hart-Miller Island, Baltimore County, Maryland

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*The following note describes a sighting of two Little Blue Dragonlets (Erythrodiplax minuscula [Rambur, 1842]) that were observed by Kevin Graff and Eugene J. Scarpulla on 30 June 2007. Regrettably, there is no specimen or photograph and therefore without hard documentation, this sighting cannot be recognized as a Baltimore County record on the official state odonate list. Although this is not an official state record, the significance of the sighting warrants a short note.*

On the morning of 30 June 2007, there were four members of the Maryland Ornithological Society visiting Hart-Miller Island. Robert Ringler, Marcia Watson, and I had walked up the short roadway from the boat dock to the island's main perimeter road and were recording bird, butterfly and dragonfly observations. Kevin Graff was still at the bottom of the road near the boat dock where the Maryland Environmental Service work vehicles were parked. At approximately 0725 hours, Graff walked up to me to report his sightings. He mentioned that he had seen two Little Blue Dragonlets (*Erythrodiplax minuscula* [Rambur, 1842]). I mentioned that this would be a new species for the island and that I would need to verify it for addition to the island list. He took me back to the site of green vegetation at the edge of the parking lot. There he showed me two very small dragonflies perched on the vegetation approximately 0.61 to 0.76 meter (24 to 30 inches) above the ground. The one that I studied the longest had a dark head, blue thorax and blue abdomen except for the last three segments that were black. The cerci were bright white and quite apparent. The hindwings each had a dark basal spot. I consulted Dunkle (2000) in the field and agreed with Graff's identification of a male Little Blue Dragonlet. After I posted the day's sightings on MDOsprey, the birding list serve, James Stasz remarked that the species was rare and should be documented by a photograph. Marcia Watson and I returned to the island the following week (7 July 2007) and searched the same area several times in hopes that we could photograph the species. The search yielded no Little Blue Dragonlets.

Dunkle (2000) describes *Erythrodiplax minuscule* as a dragonfly of marshy ponds, lakes, and sometimes stream pools and that it perches on low stems in fields.

Although *Erythrodiplax minuscula* is common in the southeastern United States (Dunkle 2000), it is rare in Maryland (Orr 2008). There are only six Maryland records: two from the Piedmont Plateau (Frederick and Montgomery Counties) and four from the Western Shore Coastal Plain (Anne Arundel [2], Charles, and Prince George's Counties). The Maryland Department of Natural Resources Natural Heritage Program has given *Erythrodiplax minuscula* the State Rank of "S1" (Highly State Rare).

Dunkle (2000) mentions five species that are similar: Plateau Dragonlet (*Erythrodiplax connata* [Burmeister, 1839]), male Red-faced Dragonlet (*Erythrodiplax fusca* [Rambur, 1842]), male Elfin Skimmer (*Nannothemis bella* [Uhler, 1857]), male Blue Corporal (*Libellula deplanata* Rambur, 1842), and female meadowhawks (*Sympetrum* Newman, 1833). Plateau Dragonlet occurs in southeastern Arizona, southwestern New Mexico, and western Texas and mature males have a black thorax and usually black cerci. Red-faced Dragonlet occurs in central Texas and mature males have a red face, brown thorax and brown cerci. The male Elfin Skimmer has the face edged in white and a totally pale blue abdomen. The male Blue Corporal has only the front of the thorax pale blue, a totally pale blue abdomen and two narrow basal streaks at the base of each wing. Male meadowhawks do not have blue abdomens. The above descriptions from Dunkle (2000) eliminate these five species from consideration.

Orr (personal communication) states that there are three species that often get confused with Little Blue Dragonlet: certain worn old male individuals of Seaside Dragonlet (*Erythrodiplax berenice* [Drury, 1770]), Blue Dasher (*Pachydiplax longipennis* [Burmeister, 1839]) and Double-ringed Pennant (*Celithemis verna* Pritchard, 1935). The male Seaside Dragonlet has a black thorax and abdomen and has no basal wing spots. The male Blue Dasher has a white face, green eyes, a black and yellow striped thorax, and there are two black streaks within an amber spot at the base of each hindwing. The male Double-ringed Pennant has a smoky black face, thorax and abdomen. These characters as stated in Dunkle (2000) also eliminate the above three species from consideration.

It is hoped that future trips to the island will yield additional sightings and hard documentation of *Erythrodiplax minuscula.*

## LITERATURE CITED

Dunkle, S.W. 2000. *Dragonflies through Binoculars: a field guide to dragonflies of North America*. Oxford University Press, New York, NY. 266 pp., 47 plates.

Orr, R.L., (coordinator). 2008. *The Dragonflies and Damselflies of Maryland and the District of Columbia*. http://www.marylandinsects.com/MDDCOdonateRecords.html (Version 23 January 2008). Columbia, MD.

# Giant Swallowtail, *Papilio cresphontes* Cramer, 1777, on Hart-Miller Island, Baltimore County, Maryland

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On 10 September 2005, nine visitors to Hart-Miller Island observed a vagrant Giant Swallowtail (*Papilio cresphontes* Cramer, 1777), the first record for the island. Hans Holbrook spotted the butterfly nectaring on late-flowering thoroughwort (*Eupatorium serotinum* Michaux) along the North Cell dike just above the administration building. He alerted the rest of our group and we spent several minutes excitedly snapping digital images. The individual was fairly worn, but easily identifiable (Figures 1 and 2).

With wingspans up to 15.2 centimeters (6 inches), *P. cresphontes* is the largest species of Lepidoptera found in North America. Its dark upperside is patterned with bold yellow bands that cross at the forewing. Its body and underside are pale yellow, and its tails are highlighted by yellow centers (Brock and Kaufman 2003). It specializes on host plants in the citrus family, and in our area they favor northern prickly ash (*Zanthoxylum americanum* Miller) and hoptree (*Ptelea trifoliata* Linnaeus) (Clark and Clark 1951). There are two broods per year: one from the middle of May until early July, and a second from the middle of July through September (Clark 1932). It is a common species in much of the eastern United States, ranging west to southern California at lower densities (Brock and Kaufman 2003). Maryland is near the northern end of its breeding range in the east.

The status of *P. cresphontes* in Maryland is fascinating. Its few established populations are very local, but its members are powerful flyers that occasionally wander widely in search of larval host plants. Local populations are scattered along the Potomac River from Montgomery County to southwestern Allegany County, while records of wandering individuals have been recorded across the state's counties (Platt 1980). Clearly such a strategy benefits the species when the discovery of host plants leads to the establishment of a new colony. As documented in other species, some colonies near the edge of the Giant Swallowtail's range may be impermanent but regularly re-established (Richard H. Smith, Jr., personal communication). The Maryland Department of Natural Resources Natural Heritage Program has given the Giant Swallowtail the State Rank of "S2" (State Rare) and the State Status of "I" (In Need of Conservation).

**Figure 1. Dorsal view of *Papilio cresphontes* nectaring on *Eupatorium serotinum* on Hart-Miller Island, 10 September 2005**

**Figure 2. Ventral view of *Papilio cresphontes* nectaring on *Eupatorium serotinum* on Hart-Miller Island, 10 September 2005.**

Records of wandering *P. cresphontes* in Maryland are rare and unpredictable, but the species has now been documented in 15 of Maryland's 23 counties. Some recent records of note have included Carroll County (Mt. Airy, 20 July 2002, David Smith); Baltimore (Cylburn Arboretum, 7 September 2003, Steve Sanford); Dorchester County (near Beulah, 25 August 2006, Hans Holbrook); and most recently, Cecil County (Elkton, 1 August 2007, Marcia Watson) (Platt 1980; Richard Smith personal communication). The species has yet to be recorded in Anne Arundel, Caroline, Harford, Howard, Kent, Queen Anne's, Somerset, or Wicomico Counties.

## ACKNOWLEDGEMENTS

I wish to thank Richard (Dick) H. Smith, Jr. for his invaluable assistance in gathering materials on the natural history of this species in the Mid-Atlantic region.

## LITERATURE CITED

Brock, J.P., and K. Kaufman. 2003. *Butterflies of North America*. Houghton-Mifflin, Boston, MA. 384 pp.

Clark, A.H. 1932. The *Butterflies of the District of Columbia and Vicinity*. Smithsonian Institution United States National Museum, Bulletin 157: 178-179.

Clark, A.H., and L.F. Clark. 1951. *The Butterflies of Virginia*. Smithsonian Miscellaneous Collection 116(7):120-121.

Platt, A.P. 1980. Records of *Papilio cresphontes* in Maryland, with notes on its northern distribution. *The Maryland Entomologist* 1(4): 10-12.

# First Record of Palamedes Swallowtail, *Papilio palamedes* (Drury), 1773, in Baltimore County, Maryland

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On 3 September 2005, we observed a Palamedes Swallowtail (*Papilio palamedes* [Drury], 1773) on Hart-Miller Island, constituting the first record for this species in Baltimore County, Maryland. We had gone to Hart-Miller Island that day as part of a group of ten people on a field trip sponsored by the Baltimore Bird Club and led by Eugene J. Scarpulla. It was a sunny day, with morning temperatures about 19.4°C (67°F.) and winds out of the north-northwest at about 5 knots.

Having arrived on the island about 0715 hours, we spent the morning working through the heavily vegetated rim of the South Cell. Although the primary objective of our group was to look at and census the birds on Hart-Miller Island, we were continually distracted by the many butterflies in flight. By the end of the day, we had tallied 24 butterfly species. Swallowtails seen in the South Cell in the morning included Black Swallowtail (*Papilio polyxenes* Fabricius, 1775); Eastern Tiger Swallowtail (*P. glaucus* Linnaeus, 1758) in both black female and yellow forms; and Spicebush Swallowtail (*P. troilus* Linnaeus, 1758).

At about 1000 hours, our group was heading south on a narrow trail through an area of dense vegetation. James Stasz called our attention to a dark swallowtail with yellow markings, flying along the trail ahead of us. The butterfly looked on the large side, and we debated if it could be a Palamedes. We watched it through binoculars until it disappeared in the vegetation, and then we consulted a copy of Glassberg's *Butterflies through Binoculars* (1993), which Terry was carrying. Stasz is an accomplished naturalist who had seen Palamedes Swallowtails on several occasions in the past, the most recent being Memorial Day weekend of the same year, when he had observed several hundred at Dismal Swamp in Virginia (Stasz, personal communication). Stasz led us through a study of the photos in the field guide and eventually, we decided that we could not be certain that the butterfly we had seen was a Palamedes. However, studying the field guide served to fix the appearance of the swallowtails in our minds, and was a good primer for identifying the butterfly that we saw later.

At about 1100 hours, we were near the south tip of the island, near the edge of the water in the South Cell impoundment. One member of our group located an interesting bird, a Yellow-breasted Chat (*Icteria virens* [Linnaeus, 1758]), perched up in the grasses along the water's edge, and we stopped to look at it. The two of us (Terry and Watson) were standing side by side, and two or three others were near us, spread out in a loose semi-circle around the bird we were watching. We both had our binoculars up, looking at the bird, when suddenly, two swallowtails flew up in front of the bird, directly into the field of view of our binoculars, no more than 4.6 meters (15 feet) away from us. The two butterflies were flying side by side and about 46 centimeters (18 inches) apart, skimming just above the top of the vegetation, about 76 to 91 centimeters (30 to 36 inches) above the ground. The dorsal surface of both butterflies was black with yellow markings – yellow margins and a yellow stripe on a black background and both had tails. But, the two butterflies were strikingly different in size, with the wingspread of the larger butterfly between 12.7 and 15.2 centimeters (5 and 6 inches), while the smaller butterfly was about 10.2 centimeters (4 inches). We immediately agreed that the smaller of the butterflies was a Black Swallowtail, and we tentatively identified the larger as a Palamedes Swallowtail, pending consultation of a field guide.

The two butterflies flew side by side for several seconds and then separated, and the larger of the two butterflies then disappeared into a clump of vegetation. Neither butterfly had been seen in a perched position and therefore we were unable to observe the underside of the wings. Attempts to relocate the larger butterfly and net it were unsuccessful.

Terry's notes on the appearance of the Palamedes state, in part:

> "...I had two dark swallowtails in view at the same time...One of them was a male Black Swallowtail. The bright yellow median bands were very apparent so it couldn't have been a Spicebush. The other butterfly, being chased or doing the chasing, was noticeably larger. In addition to the difference in size, the HW post-median band was significantly wider than the other butterfly. The yellow color on the Black (Swallowtail) was similar to the pale yellow on an Eastern Tiger Swallowtail. The yellow on what was maybe a Palamedes was a much more brilliant yellow..."

Watson also noted the different yellow tone on the larger butterfly, noting:

> "YELLOW COLOR was also different. The yellow markings on the smaller butterfly were pale lemony yellow. The yellow markings on the larger butterfly were a rich vibrant butter yellow – intense and glowing. Also, the smaller butterfly had two orange and black dots on the midline of the hindwing. The larger butterfly did not have noticeable dots on the

> midline of the hindwing...SHAPE OF THE YELLOW MARKINGS was different. The yellow stripe on the larger butterfly was relatively broader than on the other butterfly, and it formed a distinct forward-facing V. The smaller butterfly had a narrower yellow stripe that seemed to be less of a V. On the smaller butterfly, there was a small V-shaped stripe on the hindwings, but the stripe on the forewings went laterally toward the wingtips, instead of pointing forward in a V..."

Our overall impression was that the larger butterfly was splashier in appearance, more vividly marked with more yellow, than the smaller one. We again consulted Glassberg's *Butterflies through Binoculars* (1993), and saw nothing that contradicted our tentative identification of the Palamedes Swallowtail. We eliminated both Spicebush Swallowtail and Pipevine Swallowtail (*Battus philenor* [Linnaeus], 1771) because of the lack of noticeable blue on the dorsal surface of the hindwing, and because of the presence of the yellow stripe and yellow marginal markings on the hindwing. Although the dark form females of Eastern Tiger Swallowtail do have yellow marginal markings on the hindwing, they also have a line of dark blue spots, and do not have a yellow stripe on the wings, eliminating this species as well. We also considered Giant Swallowtail (*Papilio cresphontes* Cramer, 1777), but this species was eliminated by the appearance and placement of the yellow stripe, which did not form an X at the apex of the forewing. Interestingly, a Giant Swallowtail was seen and photographed at Hart-Miller Island one week later, on 10 September 2005, as documented elsewhere in this issue (Hubick 2008).

Later that day, as we were leaving the South Cell, Terry believed she briefly saw a Palamedes again, and attempted to follow it to try to get a look at the underside, but was unable to stay with it. Stasz also had another brief sighting at a different location late in the day.

Palamedes Swallowtails are primarily a southern species, ranging from the Dismal Swamp of Virginia south to Florida, and then along the Gulf Coast as far as Texas and Mexico (Tyler 1975; Woodbury 1994). It is confined to the coastal plain in most of its range, but, when found inland, frequents areas with standing water that support the obligate larval food plant, red bay (*Persea borbonia* [Linnaeus] Sprengel). Early accounts of Palamedes refer to swampbay (*Persea palustris* [Rafinesque] Sargent) and possibly other members of the family Lauraceae, including sassafras (*Sassafras albidum* [Nuttal] Nees), as possible larval food sources. However, the laboratory work of Scriber et al. (2000) has shown that only red bay is able to support larval growth. Thus, breeding colonies are restricted and coincident with the occurrence of this plant. Adults feed on nectar of sweet pepperbush (*Clethra alnifolia* Linnaeus), blue flag (*Iris versicolor* Linnaeus), pickerel weed (*Pontederia cordata* Linnaeus), and various azaleas (*Rhododendron* Linnaeus spp.).

On an overall basis, Palamedes Swallowtail is not uncommon, and is not considered to have threatened status (Collins and Morris 1985), but in Maryland, the distribution is so limited and the breeding population so small that the Maryland Department of Natural Resources Natural Heritage Program has given it the State Rank of "S1" (Highly State Rare) and the State Status of "E" (Endangered).

Palamedes Swallowtails are considered to have a single breeding site in Maryland, centered in the Pocomoke Swamp of southern Worcester County (Brighton, personal communication; Smith, personal communication). Here, 30 or more Palamedes have been seen at a time; they are thought to be double-brooded at this site, with sightings in May and again in late summer (Smith, personal communication). The individual shown (Figure 1) was photographed in Pocomoke Swamp in August 2007 by Jim Brighton of Oxford, Maryland.

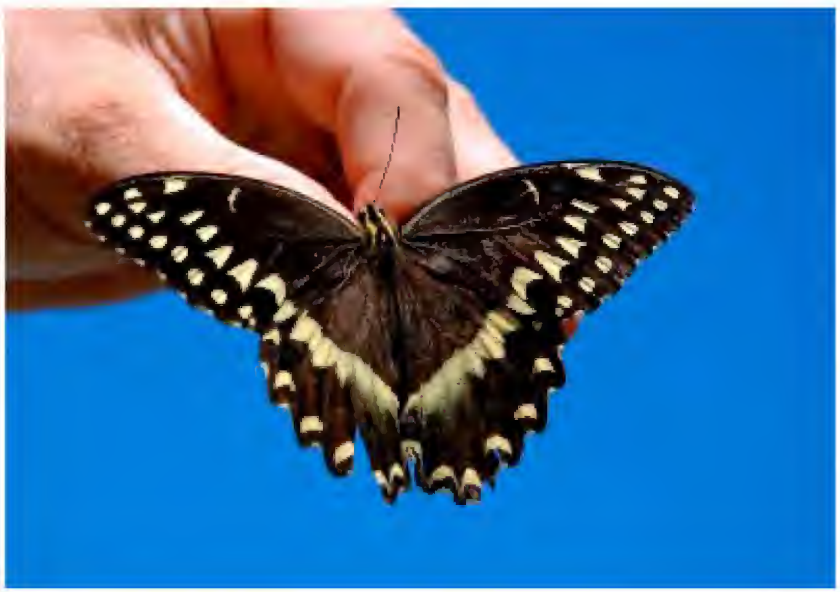

**Figure 1. *Papilio palamedes*, Worcester County, MD, August 2007 (photographed by and used with permission of Jim Brighton)**

Two individuals of Palamedes have also been recorded in Somerset County. One was seen on 25 August 1984 by Maryland Entomological Society member Richard H. Smith, Jr., just 1.61 kilometers (1 mile) west of the known breeding site in Worcester County, and would likely be from that population (Smith,

personal communication). The other was seen by Patricia Durkin and Jane Whittaker on 1 June 2000 in an area that had been found by a state botanist to hold a small number of red bay trees, the larval food source of Palamedes Swallowtails; this site could represent a potential second breeding location for Maryland (Smith, personal communication).

The individual that we observed at Hart-Miller Island was likely a stray originating from a second brood at Pocomoke Swamp or some other breeding site located toward the south. Outside of the breeding area in Worcester County (and potentially extending into Somerset), Palamedes Swallowtails are known only as strays in Maryland, with documented sightings of single individuals in only five other counties plus the District of Columbia (Table 1).

| Location | Date | Observer(s) | Reference |
|---|---|---|---|
| Caroline County: Hillsboro | 1965, date unspecified | A. Shapiro | Lepidopterists' Society 1966 |
| Dorchester County: Unspecified site | 2 SEP 1980 | John Fales and William Grooms | Lepidopterists' Society 1981 |
| Montgomery County: Seneca Creek/ McKee-Beshers area | 7 SEP 1979 (Collected specimen) | William R. Grooms | Fales and Grooms 1980 |
| Prince George's County: Fort Washington | Date unknown, reported on 31 JAN 1957 | David Richardson | Fales 1974 |
| St. Mary's County: Point Lookout | 10 SEP 2000 | Marshall Iliff | Lepidopterists' Society 2001 |
| Washington, D.C.: Chillum Heights | 31 JUL 1937 | Warren H. Wagner, Jr. | Wagner 1941 |

**Table 1. Previous records of Palamedes Swallowtail in Maryland and the District of Columbia away from the Worcester County breeding area (extracted from the personal records and notes of Richard H. Smith, Jr.)**

Individuals have also been recorded in Northampton (Clark and Clark 1951) and Accomack Counties (Opler 1983) in the Virginia portion of the Delmarva Peninsula, but it is not known if a breeding population exists in that region (Smith, personal communication). Additionally, strays have been found in each of the three counties in Delaware: at Prime Hook National Wildlife Refuge in Sussex County (Lepidopterists' Society 1983 and 1999); at Bombay Hook National Wildlife Refuge in Kent County (Lepidopterists' Society 2000); and at Wilmington in New Castle County (Shapiro 1966).

Palamedes Swallowtails are also known as strays in the neighboring states of Pennsylvania and New Jersey (Gochfeld and Burger 1997; Opler et al. 2006). Records exist for individuals as far north along the coast as Long Island, New

York, and in the interior, up the Mississippi Valley as far north as Missouri and Nebraska (Opler et al. 2006).

## ACKNOWLEDGEMENTS

The authors wish to thank Richard H. Smith, Jr., who kindly supplied notes of Palamedes Swallowtail sightings in Maryland from his personal records. Thanks also to Jim Brighton of Oxford, Maryland, for permission to use his photograph of a Palamedes Swallowtail at the breeding site in Worcester County, MD.

## LITERATURE CITED

Clark, A.H., and L.F. Clark. 1951. *The Butterflies of Virginia*, Smithsonian Miscellaneous Collection 116(7), Washington, DC. 239 pp.

Collins, N.M., and M.G. Morris. 1985. *Threatened Swallowtail Butterflies of the World: The IUCN Red Data Book.* IUCN, Cambridge, U.K. 402 pp., 8 plates.

Fales, J.H. 1974. Check-list of the skippers and butterflies of Maryland. *Chesapeake Science* 15(4):222-229.

Fales, J.H., and W.R. Grooms. 1980. Notes on butterfly collecting in Maryland in 1979. *The Maryland Entomologist* 1(4):12-13.

Glassberg, J. 1993. *Butterflies through Binoculars: a field and finding guide to butterflies in the Boston-New York-Washington region.* Oxford University Press, New York, NY. 160 pp., 39 plates.

Gochfeld, M., and Burger, J. 1997. *Butterflies of New Jersey.* Rutgers University Press, New Brunswick, NJ. 330 pp.

Hall, D.W. and J.F. Butler. 1998 (rev. 2007). *Palamedes Swallowtail, Papilio palamedes (Drury) (Insecta: Lepidoptera: Papilionidae).* Document EENY-60, Entomology and Nematology Department, Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida. http://edis.ifas.ufl.edu (Version 28 October 2007).

Emmel, J.F. 1975. Subfamily Papilioninae, in *The Butterflies of North America.* W.H. Howe, Editor. Doubleday, Garden City, NY. 634 pp.

Hubick, W.J. 2008. Giant Swallowtail, *Papilio cresphontes* Cramer, 1777, on Hart-Miller Island, Baltimore County, Maryland. *The Maryland Entomologist* 4(4):31-33.

Lepidopterists' Society. 1966. Season Summary, 1965. *News of the Lepidopterists' Society* (3):10.

Lepidopterists' Society. 1981. Season Summary, 1980. *News of the Lepidopterists' Society* (2):26.

Lepidopterists' Society. 1983. Season Summary, 1982. *News of the Lepidopterists' Society* (2):31.

Lepidopterists' Society. 1999. Season Summary, 1998. *News of the Lepidopterists' Society* (41) Supplement S1:68.

Lepidopterists' Society. 2000. Season Summary, 1999. *News of the Lepidopterists' Society* (42) Supplement S1:70.

Lepidopterists' Society. 2001. Season Summary, 2000. *News of the Lepidopterists' Society* (43) Supplement S1:60.

Opler, P.A. 1983. *County Atlas of Eastern United States Butterflies (1840-1982).* Office of Endangered Species, U.S. Fish and Wildlife Service, Washington, DC. 76 pp.

Opler, P.A., and G.O. Krizek. 1984. *Butterflies East of the Great Plains: an illustrated natural history*. The Johns Hopkins University Press, Baltimore, MD. 294 pp., 54 plates.

Opler, P.A. and V. Malikul. 1992. *A Field Guide to Eastern Butterflies.* Peterson Field Guide Series. Houghton Mifflin, Boston, MA. 396 pp., (including 39 plates).

Opler, P.A., H. Pavulaan, R.E. Stanford, and M. Pogue, coordinators. 2006. *Butterflies and Moths of North America.* Bozeman, MT. Mountain Prairie Information Node. http://www.butterfliesandmoths.org (Version 28 October 2007).

Scriber, J.M., N. Margraf and T. Wells. 2000. Suitability of four families of Florida "bay" species for *Papilio palamedes* and *P. glaucus* (*Papilionidae*). *Journal of the Lepidopterists' Society* 54(4):131-136.

Shapiro, A.M. 1966. *Butterflies of the Delaware Valley*. Special Publication of the American Entomological Society, VIII.19.59, p. 43.

Tyler, H.A. 1975. *The Swallowtail Butterflies of North America*. Naturegraph Publishers, Healdsburg, CA. 192 pp.

Wagner, Warren H., Jr. 1941. District of Columbia butterfly notes (Lepidoptera: Rhopalocera). *Entomological News* 52(7):196-200.

Wagner, Warren H., Jr. 1941. District of Columbia butterfly notes (Lepidoptera: Rhopalocera). *Entomological News* 52(9):245-249.

Woodbury, E.N. 1994. *Butterflies of Delmarva*. Tidewater Publishers, Centerville, MD. 138 pp.

# The Ants (Hymenoptera: Formicidae) of Hart-Miller Island, Baltimore County, Maryland

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## ABSTRACT

The ant fauna of Hart-Miller Island (HMI), Baltimore County, Maryland was investigated from 2006 to 2007. Collections were made by visual searching, sweeping vegetation, baiting, black-lighting, and leaf litter extraction. Leaf litter collections were made before and after a dry spell in 2007 for species comparison. Thirty species of ants from twenty genera were identified from thirty-six collections. *Temnothorax curvispinosus* Roger was the most represented species, occurring in 36% of collections. *Ponera pennsylvanica* Buckley and *Solenopsis molesta* (Say) were the most abundant leaf litter species. *Camponotus* and *Lasius* each contained four species, the largest number for a genus. Seventy-five percent of the genera were represented by only one species. *Tetramorium caespitum* Linnaeus was the only non-native species identified. The HMI ant fauna is typical of the central Maryland fauna except for the rarity and absence, respectively, of the larger *Camponotus* and *Formica* species. Possible contributing factors for their relative absence from HMI are discussed.

## INTRODUCTION

There has been a renewed interest in recent surveys of ant fauna by state. A number of surveys focused mainly on the western and southern states, for which monographs have been published. The Maryland fauna has received some attention. Although no published monograph pertaining to Maryland ants exists at present, a statewide survey and several localized surveys for various regions in the state are currently underway. As a part of the statewide survey, the ant fauna of Hart-Miller Island (HMI), Baltimore County, Maryland was investigated. The results of the survey are reported here.

## METHODS

Hart-Miller Island is located in the northern Chesapeake Bay region at the mouth of Back River, at N 39°14', W 076°22', approximately 12.1 kilometers (7.5 miles) east-southeast of the City of Baltimore/Baltimore County line. The island is composed of two sections: the Maryland Department of Natural Resources' Hart-Miller Island State Park (HMI-SP) and the Maryland Port Administration's Hart-Miller Island Dredged Material Containment Facility

(HMI-DMCF). The HMI-SP is made up of the former remnants of the "original" Hart Island and the "original" Miller Island that were joined by a constructed sandy beach in 1984. The remnant of the "original" Hart Island is vegetated with two hardwood forest fragments, shrubby zones, and a small (≤1 hectare [≤ 2.5 acres]) loblolly pine (*Pinus taeda* Linnaeus) tract. The former islands also became a part of a 9.7-kilometer (6-mile) perimeter dike that surrounded the HMI-DMCF. The HMI-DMCF is used as a site to place dredged material from Chesapeake Bay navigation channels and the approaches to Baltimore Harbor and the Port of Baltimore. The HMI-DMCF is composed of the 324-hectare (800-acre) North Cell and the 121 hectare (300-acre) South Cell.

Collections were made at various times from September 2006 to July 2007. The South Cell of the island and the remnant of the "original" Hart Island were the primary focus of the survey due to the higher number of diverse, stable habitats. Visual searching and sweeping vegetation were the most commonly used collection methods. Areas in the South Cell that were searched for ants include the dike around the South Cell, the upland grassy area, and the area around the water intake pond. Additionally, three fragmented forest tracts on the remnant of the original Hart Island were sampled: a small stand of loblolly pine near the Maryland Environmental Service boat dock (loblolly pine tract), a much larger hardwood stand surround by common reed (*Phragmites australis* [Cav.] Trin. ex Steud.) (south hardwood tract), and a smaller hardwood stand bordering the beach and HMI-SP headquarters (north hardwood tract). Additional collection methods used were baiting, leaf litter extraction, and mercury vapor light collection. Leaf litter was randomly selected within the loblolly pine tract and the north hardwood tract, sifted in a rectangular leaf litter sifter, and placed in 60 centimeter x 21 centimeter (23.6 inch x 8.3 inch) plastic bags for transport to the laboratory. Two collection events were made in the north hardwood tract at the same area within the tract, one during a dry spell in June 2007 and another collection made in July 2007, less than a week following a thunderstorm. The sifted leaf litter was placed in Winkler extractors and Berlese-Tullgren funnels. Approximately 20 grams (0.7 ounce) of sardines in oil were placed on five paper towel squares measuring 5 centimeters x 5 centimeters (2 inches x 2 inches) to be used as bait stations. They were placed only in the north hardwood tract near the beach. The bait stations were left for two hours, after which time they were collected, along with any ants on or in the vicinity of the bait, and placed in small clear plastic sandwich bags for later processing.

A 175-watt mercury vapor lamp mounted on a camera tripod was set up near the Maryland Environmental Service garage adjacent to the North Cell dike (Figure 1). A cotton collecting sheet, 2 meters x 3 meters (6.6 feet x 9.8 feet), was placed under the tripod, the lamp turned on near the North Cell and operated from 2100 hours to 2300 hours on 16 June 2007 to attract and collect alates (winged individuals). Collected material was stored in 7 dram (0.87 ounce) glass vials containing 70% isopropanol or 95% ethanol for later identification.

Each vial represented one collection event. Taxa were identified using Coovert (2005), Lynch (1987), Bolton (1994), and Creighton (1950).

**Figure 1. Mercury vapor light setup for attracting alates.**

## RESULTS AND DISCUSSION

Thirty species of ants representing twenty genera and five subfamilies were collected and identified during the survey (Table 1). None of the species represents a new state record and all are typical of the central Maryland ant fauna. Of the 913 specimens representing 36 collections, *Temnothorax curvispinosus* Roger was the most commonly represented species, appearing in 36% of collections, although comprising only 5.5% of the collected specimens. Other species well represented in collections were *Paratrechina faisonensis* (Forel) and *Lasius alienus* (Foerster) (both occurred in 22% of collections); *Aphaenogaster rudis* complex (Enzmann) (present in 19% of collections); and *Crematogaster lineolata* (Say), *Ponera pennsylvanica* Buckley and *Tetramorium caespitum* (Linnaeus) (each at 17 % of collections).

| Subfamily | Species | Number | Percent of Total |
|---|---|---|---|
| Ponerinae | | | |
| | *Ponera pennsylvanica* Buckley | 173 | 18.7 |
| Proceratiinae | | | |
| | *Proceratium silaceum* Roger | 2 | 0.2 |
| Myrmecinae | | | |
| | *Aphaenogaster fulva* Roger | 7 | 0.8 |
| | *Aphaenogaster rudis* complex (Enzmann) | 65 | 7.0 |
| | *Aphaenogaster tennesseensis* (Mayr) | 14 | 1.5 |
| | *Crematogaster lineolata* (Say) | 23 | 2.5 |
| | *Crematogaster pilosa* Emery | 29 | 3.1 |
| | *Monomorium minimum* (Buckley) | 22 | 2.4 |
| | *Myrmecina americana* Emery | 2 | 0.2 |
| | *Myrmica punctiventris* Roger | 5 | 0.5 |
| | *Pheidole bicarinata* Mayr | 40 | 4.3 |
| | *Protomognathus americanus* (Emery) | 1 | 0.1 |
| | *Pyramica pulchella* (Emery) | 1 | 0.1 |
| | *Pyramica rostrata* (Emery) | 9 | 1.0 |
| | *Solenopsis molesta* (Say) | 132 | 14.3 |
| | *Stenamma impar* Forel | 2 | 0.2 |
| | *Temnothorax curvispinosus* Roger | 51 | 5.5 |
| | *Tetramorium caespitum* (Linnaeus) | 54 | 5.8 |
| Dolichoderinae | | | 0.1 |
| | *Forelius pruinosus* (Roger) | 119 | 12.9 |
| | *Tapinoma sessile* (Say) | 16 | 1.7 |
| Formicinae | | | |
| | *Camponotus castaneus* (Latreille) | 8 | 0.9 |
| | *Camponotus impressa* Roger | 1 | 0.1 |
| | *Camponotus nearcticus* Emery | 2 | 0.2 |
| | *Camponotus subarbatus* Emery | 6 | 0.6 |
| | *Lasius alienus* (Foerster) | 29 | 3.1 |
| | *Lasius interjectus* (Mayr) | 30 | 3.2 |
| | *Lasius neoniger* Emery | 2 | 0.2 |
| | *Lasius umbratus* (Nylander) | 23 | 2.5 |
| | *Paratrechina faisonensis* (Forel) | 57 | 6.2 |
| | *Prenolepsis imparis* (Say) | 1 | 0.1 |

**Table 1. Ant species identified from Hart-Miller Island, Baltimore County, Maryland, 2006-2007**

Half of the total species collected were represented by only one or two collections. Several species were represented by only a single specimen. They include *Camponotus impressa* Roger, *Prenolepsis imparis* (Say), *Pyramica pulchella* (Emery), and *Protomognathus americanus* (Emery). The collection of a single specimen was not necessarily an artifact of the rarity of the species, but was likely the result of a number of contributing factors. Of these four species, only *P. americanus* (Figure 2) may be considered uncommon overall, for this species occurs in the nests of *Temnothorax curvispinosus* and other *Temnothorax* species, where it enslaves its host. This species is listed in the

2000 IUCN (International Union for Conservation of Nature and Natural Resources) Red List of Threatened Species (Hilton-Taylor 2000).

**Figure 2. *Protomognathus americanus* worker , a slave-making ant which occurs in the nest of various *Temnothorax* species. Note the relatively large head characteristic of this species.**

The relative scarcity of two of the species likely reflects environmental conditions at the time of collecting. *Prenolepsis imparis* is a cold tolerant species which is active at temperatures too cool for most other species to forage and often estivate, or at least greatly reduce foraging activities, during the drier summer months. The single specimen was collected in July, several days following a rain shower. *Pyramica* species appear to be less tolerant to changes in soil moisture content than many of the other hypogaeic species (leaf litter inhabiting forms, such as *Ponera*, *Stenamma*, or *Myrmecina*) collected and will disappear deep underground as the soil began to lose its moisture content. This single *Pyramica pulchella* was recovered from leaf litter in June during the dry period, although no additional specimens were found in July.

Precise location within a species' geographic distribution range has some impact on its relative abundance. *Camponotus impressa* reaches its northernmost range

in Maryland, where its relative abundance would be expected to decrease. Lynch (1987) found this species to be uncommon in his study site in Anne Arundel County, Maryland, south of HMI.

Most of the genera (75%) were represented by only one species. *Lasius* and *Camponotus* were the genera with the most species identified on HMI, each with four species. *Aphaenogaster* followed with three species, although the number of species may increase when the taxonomy of the *A. rudis* complex (Figure 3), which contains a number of cryptic species (Umphrey 1996), is finally resolved.

**Figure 3. *Aphaenogaster rudis* complex workers in galleries under a stone.**

Sixty-six percent of the total ant species were epigaeic foragers (forage above ground in the open), 10% of the species were subterranean foragers, and the

remainder were hypogaeic (forage above ground but within the humus or leaf litter zone on top of the soil).

Some overlap in foraging strategies occurs. *Myrmica*, *Aphaenogaster*, and *Crematogaster*, normally epigaeic species, were sometimes recovered from leaf litter extractions. *Solenopsis molesta* (Say) usually displays both subterranean and hypogaeic tendencies, but sometimes develop epigaeic behavior when they enter houses in search for food (Smith, 1965).

Twice as many species were present in leaf litter samples from the north hardwood tract in July (Table 2) than in June (Table 3) when it was drier. From both collections the ponerine *P. pennsylvanica* was the dominant species. It was not only the dominant leaf litter form, but also appeared to be highly tolerant to soil drying conditions. It is interesting to note the second most abundant species present in one leaf litter collection was absent from the other sample collection. A possible explanation is that microhabitat changes may have favored the shift in abundance from one species to another, in this case *L. alienus* and *P. faisonensis*.

| Species | Percent of Total |
|---|---|
| *Ponera pennsylvanica* | 67.5 |
| *Paratrechina faisonensis* | 9.4 |
| *Myrmecina americana* | 7.5 |
| *Aphaenogaster rudis* complex | 5.0 |
| *Myrmica punctiventris* | 1.9 |
| *Temnothorax curvispinosus* | 1.9 |
| *Solenopsis molesta* | 1.3 |
| *Proceratium silaceum* | 0.6 |
| *Protomognathus americanus* | 0.6 |
| *Stenamma impar* | 0.6 |

**Table 2. July 2007 Leaf Litter Collection: North Hardwood Tract (N=160)**

| Species | Percent of Total |
|---|---|
| *Ponera pennsylvanica* | 83.7 |
| *Lasius alienus* | 9.3 |
| *Crematogaster lineolata* | 2.3 |
| *Pyramica pulchella* | 2.3 |
| *Stenamma impar* | 2.3 |

**Table 3. June 2007 Leaf Litter Collection: North Hardwood Tract (N=43)**

When the collections were compared to the loblolly pine tract sample (Table 4), a rather different faunal composition emerged. Here, *Ponera pennsylvanica* made up a minor (<10%) component. *Solenopsis molesta* and *T. curvispinosus* together made up 85% of the fauna, whereas in the north hardwood tract they together comprise only 3%. Species diversity was similar to that of the north hardwood tract collection made in June, even though this collection was made in July when the area received precipitation. It appeared that the loblolly pine tract did not support a diverse ant fauna.

| Species | Percent of Total |
|---|---|
| *Solenopsis molesta* | 71.3 |
| *Temnothorax curvispinosus* | 13.9 |
| *Ponera pennsylvanica* | 9.6 |
| *Crematogaster lineolata* | 4.3 |

**Table 4. July 2007 Leaf Litter Collection: Loblolly Pine Tract (N=115)**

Few species were attracted to the sardine bait (Table 5). The only specimens of *Camponotus nearcticus* Emery identified in this survey were taken from a bait station. Five of the species were observed feeding on bait in the open. *Myrmecina americana* Emery is a shy species and was discovered feeding under the paper towel on the vegetable oil which seeped through the material.

| Species | Percent of Total |
|---|---|
| *Crematogaster lineolata* | 38.5 |
| *Myrmecina americana* | 15.4 |
| *Temnothorax curvispinosus* | 15.4 |
| *Camponotus nearcticus* | 15.4 |
| *Monomorium minimum* | 7.7 |
| *Lasius alienus* | 7.7 |

**Table 5. June 2007 Bait Station Collection (N=13)**

Even fewer species were collected using the mercury vapor lamp (Table 6), mostly *L. alienus* males, which made up 82% of the total *Lasius* specimens collected. Although a few alates alighted on the collecting sheet under the lamp, most of the alates crawled onto the sheet toward the light source, suggesting these specimens were probably from nearby nests. *Tetramorium caespitum* was represented by workers only and a single *Camponotus castaneus* (Latreille) male was collected.

| Species | Percent of Total |
|---|---|
| *Lasius alienus* | 85 |
| *Tetramorium caespitum* | 10 |
| *Camponotus castaneus* | 5 |

**Table 6. July 2007 Mercury Vapor Lamp Collection (N=20)**

One of the most apparent observations made regarding the HMI ant fauna is the absence, or at least the rarity, of the larger ant species, especially the formicines *Camponotus* (subgenus *Camponotus*) and *Formica*, which make up a conspicuous element of the central Maryland ant fauna. The smallest species were *S. molesta* and *Monomorium minimum* (Buckley) (1.5 – 1.7 millimeters [0.06 – 0.07 inches]); the largest was *C. castaneus* (8-10 millimeters [0.31 – 0.39 inches]). Most (77%) of the collected species were around 3 millimeters (0.12 inches) in length. Except for *C. castaneus*, all of the other identified *Camponotus* species were the smaller members of the genus. Aside from the single male *Camponotus* collected from the mercury vapor light source, larger epigaeic formicines were not observed exposed at all, either on the ground or on vegetation from any of the collecting trips to HMI. A single *C. castaneus* colony was discovered under a wooden object deep inside the south hardwood tract.

Although it is not the scope of the paper to discuss island ecology in any detail, it is felt the absence of such a significant component of the Maryland fauna should be addressed. Another island in the Chesapeake Bay, Smith Island, was also initially surveyed for ants. Smith Island is larger and farther away from the mainland than HMI, yet both large *Camponotus* and *Formica* were present (personal observation). Despite this difference, the intrinsic nature of islands which would inhibit rapid colonization of species cannot be ruled out completely. Its separation from the mainland is just one of a number of contributing factors limiting the successful colonization by large formicines. Other limiting factors include habitat stability and suitability, competition, and exclusion by established species. Most members of the subgenus *Camponotus* inhabit decaying trees and logs; such sites on HMI were largely inhabited by *Aphaenogaster* species (which also feed on other species of ants). *Aphaenogaster* colonies far outnumber *Camponotus* colonies in many areas in Maryland where both occur. *Camponotus castaneus* primarily nests in the ground under objects. Many species of *Formica* often inhabit open areas and forest margins. On HMI, much of these habitats were either surrounded by phragmites or were areas prone to flooding, rendering it unsuitable for most *Formica* species. Most of the island, particularly the North Cell, consisted of dredged material and sparse vegetation, where only a couple of hardy ants such as *Forelius pruinosus* (Roger) and *Tapinoma sessile* (Say) can inhabit. Nevertheless, seemingly suitable patches of habitat occur on HMI, and it will be

interesting to observe whether large formicines will become established over time on the island and become as conspicuous as they are on the mainland.

## LITERATURE CITED

Bolton, B. 1994. *Identification Guide to the Ant Genera of the World*. Harvard University Press, Cambridge, MA. 222 pp.

Coovert, G.A. 2005. The ants of Ohio (Hymenoptera: Formicidae). *Bulletin of the Ohio Biological Survey New Series* 15(2). 277 pp.

Creighton, W. S. 1950. The ants of North America. *Bulletin of the Museum of Comparative Zoology* 104:1-585.

Hilton-Taylor, C. (compiler). 2000. *IUCN Red List of Threatened Species*. IUCN Gland, Switzerland and Cambridge, UK. 61 pp.

Lynch, J. F. 1987. An annotated checklist and key to the species of ants (Hymenoptera: Formicidae) of the Chesapeake Bay region. *The Maryland Naturalist* 31(3-4):61-106.

Smith, M. R. 1965. House infesting ants of the eastern United States. *Technical Bulletin, Agricultural Research Service, U. S. Department of Agriculture, no. 1326*. 105 pp.

Umphrey, G. I. 1996. Morphometric discrimination among sibling species in the *fulva-rudis-texana* complex of the genus *Aphaenogaster* (Hymenoptera: Formicidae). *Canadian Journal of Zoology* 74:528-559.

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*Pontia protodice* (Boisduval & LeConte, 1829), Checkered White, nectaring on *Melilotus alba* Medikus, white sweetclover, on Hart-Miller Island, 31 July 2004

Photographed by William J. Hubick